PURCHASING

JUNE, 1955

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A Practical Guide to
COST REDUCTION

Value Analysis: Purchasing's Part In Cost Reduction page 39

Get Greater Value In: Materials page 69

Component Parts page 133

Production Tools page 235

Electrical Equipment page 285

Materials Handling page 329

Packaging & Shipping page 353

Office Equipment & Supplies page 383

MRO and Safety page 411

Table of Contents page 5

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GILLETTE SAFETY RAZOR COMPANY, South Boston, Massachusetts, has been using *Texaco Cleartex Oil B-1* as a dual purpose oil—cutting fluid and machine lubricant—for the past five years in its Brown & Sharpe and National Acme automatic screw machines.

This has resulted in long tool life, fine finish and protection for the machines. *Texaco Cleartex Oil* has helped maintain a high level of production and a low level of unit costs.

There is a complete line of *Texaco Cutting, Grinding and Soluble Oils* to help you do *all* your machining better, faster and at lower cost. A Texaco Lubrication Engineer will gladly help you select the right ones for your operation.

Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

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For More Information Circle No. 501 on Inquiry Card—Page 17

PURCHASING

The National Magazine of Industrial Purchasing

VOL. 38, No. 6 JUNE, 1955

The Value Quotient . . . Measure of Creative Buying 35

How to Use This Issue for Cost Reduction 37

Value Analysis . . . Purchasing's Part in Cost Reduction 39
- Buying for Bigger Value 41
- Notes of a Value Analyst 44
- Basic Techniques of Value Analysis 46
- How to Get the Program Going 59
- Keep Your Value Analysis Program "Sold" 65

Cost Saving Case Histories in:
- Materials 69
  - Check List for Value 70
- Component Parts 133
  - Check List for Value 134
- Production Tools and Processes 235
  - Check List for Value 236
- Electrical Equipment 285
  - Check List for Value 286
- Materials Handling 329
  - Check List for Value 330
- Packaging & Shipping 353
  - Check List for Value 354
- Office Equipment and Supplies 383
  - Check List for Value 384
- Maintenance, Repair and Operating, and Safety Supplies 411
  - Check List for Value 412

MONTHLY FEATURES

Washington Report 13
New Information for Your Catalog Files 17
News of Your Suppliers 22
F. O. B. 28
Buyer's and Seller's Mart 500
Letters to the Editor 502
Index to Advertisers 504

FREE INFORMATION SERVICE

To get further information on anything mentioned in this issue, use Reader Service Card opposite page 17

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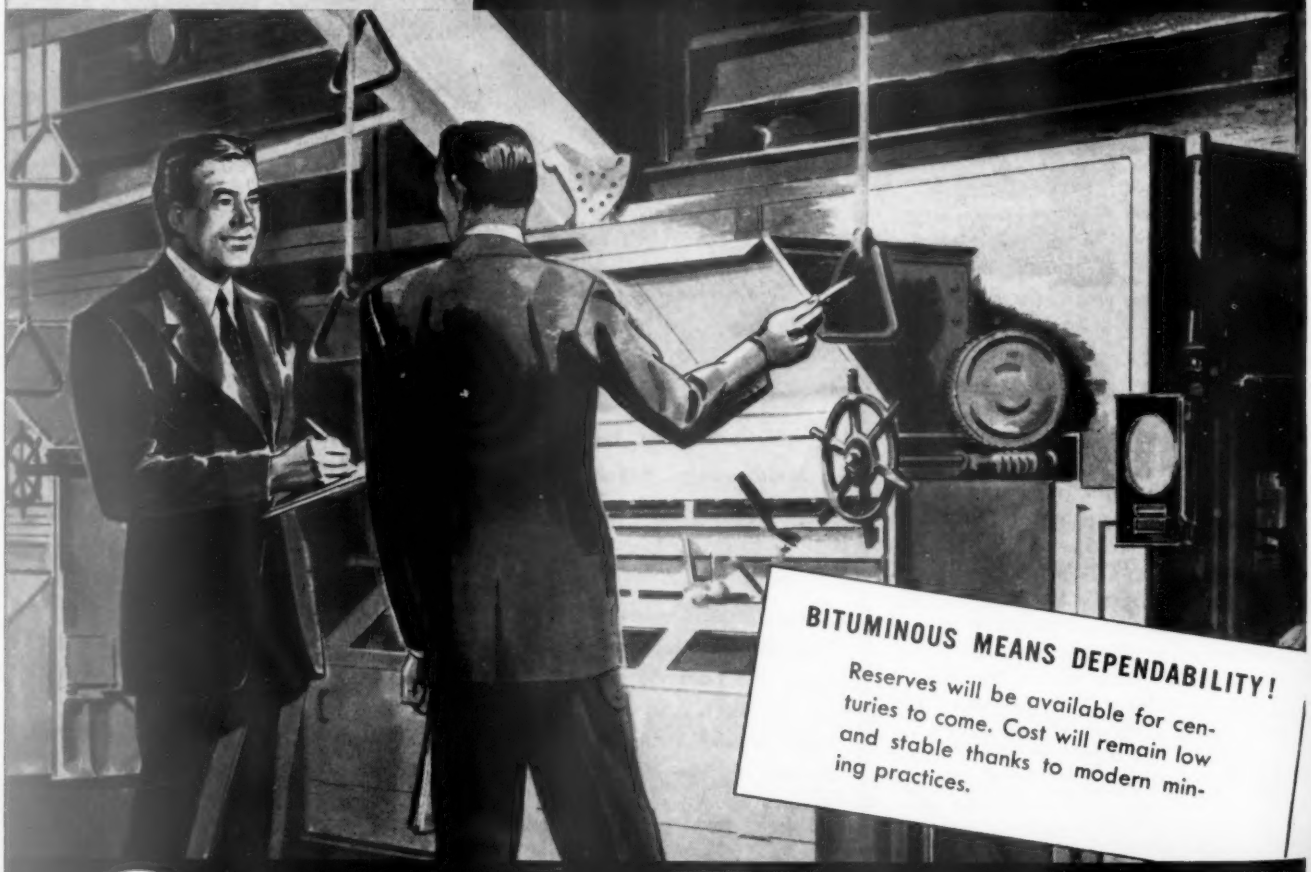
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No two plants are alike—design and equipment characteristics make the difference. That's why it's so important to consider *kind* and *size* when selecting a coal for your particular burning equipment. The B&O Technical Service is prepared to study your specific problem and help you choose the correct coal. Here's what our service does for you:

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- establishes current and predicts future relative values of these coals.
- determines the best coal for your system.
- suggests the most efficient way to burn this coal.
- supplies case histories of actual savings in fuel costs.

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BITUMINOUS COALS FOR EVERY PURPOSE

WASHINGTON REPORT

for purchasing agents

June 1, 1955

IMPACT OF MILITARY MATERIALS REQUIREMENTS

Defense and mobilization spending no longer dominate the economy, but the military represents a large segment. During the last 18 months there has been a tendency to overlook the importance of military spending, except as a source of business.

Facts are that defense still has big leverage in the distribution of materials. The Defense Materials System—a peacetime version of a materials control system— gives a priority to military requirements for steel, copper and aluminum, and there is an allocation system for aluminum.

During periods when materials are in good supply, the military—and atomic energy priority has little effect. Under such circumstances, a defense set-aside of materials comes from a supply that is generally surplus to overall demand.

At any point where scarcity develops—the military set aside begins to pinch at the civilian supply.

So far these pinches have been brief, and have had a price impact on materials markets, without actually slowing down the pace of industrial production over an appreciable length of time. Shortage of copper has created problems at the smelter and mill level, and the shortages and price action which followed then reflected on the demand for substitute materials.

* * *

HALF OF STOCKPILE PROGRAM STILL UNMET

In addition to materials controls, the continued defense program has affected materials supplies through the purchases for the strategic stockpile. Purchases for the stockpile have so far accumulated more than $5 billion worth of strategic materials—and the long-range goal calls for some $9.6 billion worth of materials.

There have been 75 materials purchased for the stockpile and by the end of this month, the stockpiling goals for 45 of these materials will have been attained. Remaining goals are in varying stages of being reached, with the stockpiling goals of eight of the strategic materials less than 25% attained.

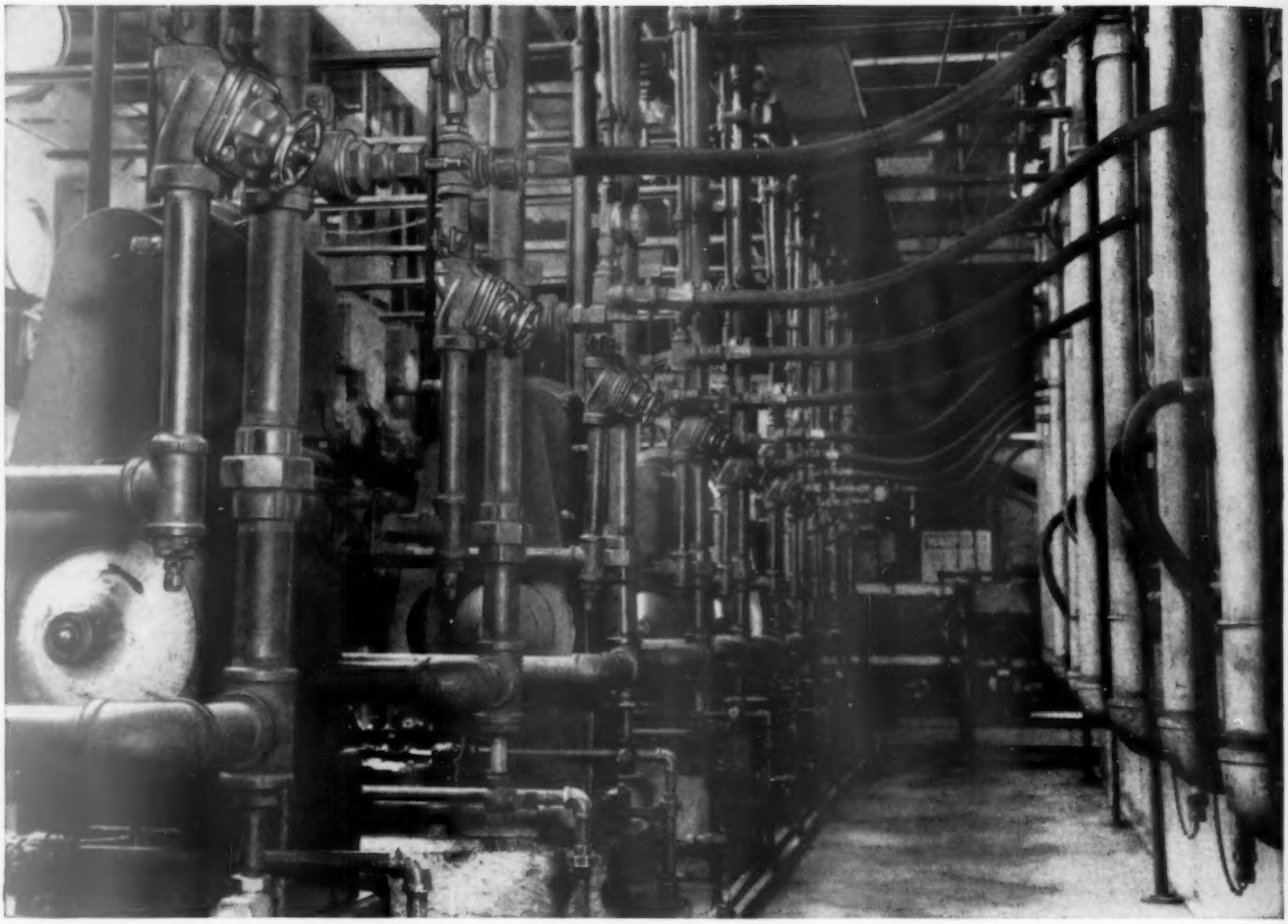
The stockpile requirements for nickel, copper and aluminum are still unmet.

* * *

DECENTRALIZATION OF PLANT FACILITIES

In addition to materials regulations, there are other mobilization regulations which have a direct bearing on the purchasing function.

Office of Defense Mobilization, which has inherited the mobilization planning function, has been trying to stimulate industry into thinking about decentralization—in terms of both location and management.



Holding high vacuum with low upkeep is routine for these CRANE VALVES

At the Crosley & Bendix Home Appliance Divs., Avco Mfg. Corp. refrigerator plant at Richmond, Ind., a line vacuum within a few microns of absolute is applied to a dehydration process. But holding this vacuum wasn't always a routine operation.

There was a time when frequent valve failures caused production losses and costly maintenance—stopped only when Crane Packless Diaphragm Valves were installed.

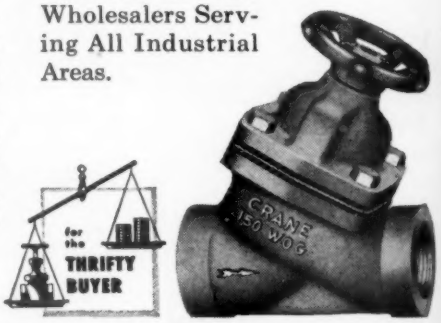
Of the valves formerly used, a multiple metal diaphragm type lasted about 3 months. Crowning of diaphragms caused restriction or closure and made the valves inoperable. Damaged diaphragms meant complete valve replacements.

In other valves, in-leakage at the diaphragm-to-stem connection made them unsatisfactory.

Now in service more than a year, none of the Crane Kel-F Diaphragm Valves has needed any maintenance. Crane simplified construction, giving a longer-life diaphragm... tighter bonnet seal and seating . . . and easier operation . . . is the reason.

The diaphragm in Crane design has longer life because it seals the bonnet only—is not subject to the cutting and crushing encountered when also used for seating. The separate, positive seating disc controls fluid even should diaphragm fail. Wide selection of body materials and trims. Ask your Crane Representative for Circular AD-1942.

Crane Co., General Offices: 836 S. Michigan Ave., Chicago 5, Ill. Branches and Wholesalers Serving All Industrial Areas.



CRANE CO.

VALVES • FITTINGS • PIPE
KITCHENS • PLUMBING • HEATING

CRANE'S FIRST CENTURY...1855-1955

MOBILIZATION PLANS FOR MANAGEMENT

Industry is also being asked to give some thought to continuity of management. What happens if an industrial company loses or is isolated from its top managerial skills?

Some companies have planned how to carry on if their facilities in one area are destroyed. One specific key plant has developed plans which would permit the resumption of 100% output of product within 90 days after its present plant was completely destroyed.

In the field of plant protection, companies are permitted 100% tax write-off on protective construction, but there have been relatively few takers.

* * *

EXTENT OF MILITARY APPROPRIATIONS

Some measure of the full extent of our defense effort is the amount of money spent since Korea. Funds appropriated for military procurement and construction since Korea are in excess of $155 billion.

There have been shifts in military requirements. There have been large increases in procurement of guided missiles—and to a lesser extent increases in ammunition, ships, electronics, equipment and aircraft.

On the downside, there has been a drop in the military purchase of tanks and automotive, textile and clothing, construction and weapons.

* * *

SAVINGS FROM USE OF SUBSTITUTE MATERIALS

In some materials, the military take is the lion's share. In the case of titanium, the military takes about 90% of the total supply, and the remaining 10% has been set aside to permit producers to explore industrial markets.

There is considerable emphasis on substitution of materials to conserve critical materials. Such military changes in materials use in one year have saved about 5.5 million pounds of copper, 2.5 million pounds of nickel, 6.2 million pounds of lead, 513 million pounds of aluminum, and 541 million pounds of cobalt, chromium and columbium-tantalum.

* * *

HIGH LEVEL OF INDUSTRIAL CAPACITY

Net effect of all the standby mobilization efforts has been to keep some industries largely engaged in defense and military production. The missiles and aviation industry, along with tank and weapon production, are the outstanding such industries.

Significant factor is that industrial capacity has been built up to a point where the large level of military procurements can be carried on while two of the largest materials consuming industries have been at peak production—and virtually all other industries have been producing at a high level—and the net effect has been some small strain in materials, but no overall strain on the economy.

* * *

THE P.A.'S PROBLEM

This is the framework in which the purchasing agent has to operate—in a period that carries from large material surplus to tight markets, with some materials completely unavailable . . .

A period when plant capacity is both surplus and when in some cases capacity is being rapidly expanded.

A period where materials are being stockpiled, where substitutes are being sought—but nevertheless temporary slumps can create large scale surplus . . .

A period when loose standby Government controls can quickly become rigid allocations of materials . . .

And finally a period where centers of our industrial economy are threatened and could be made complete shambles through enemy attack.

What are your ring requirements?



Titanium?
Aluminum?
Stainless?
Ferrous?
Alloy?

Today American Welding supplies flash butt-welded rings to every U. S. jet engine manufacturer. Our modern plant is equipped to perform not only rough ring operations, such as forming, welding and sizing, but also whatever machining you may require.

In many cases where circular metal components have been made by some other method, flash butt-welding of bars, plate or special mill-rolled shapes has saved our customers thousands of dollars.

Our Industrial Products Division may be able to suggest similar economies for you. Why not write today — they will be glad to study your problem. (For a prompt analysis, include blueprints and specifications.)

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AMERICAN WELDING

PRODUCTION FACILITIES CATALOG
Ask For Free Copy

For More Information Circle No. 516 on Inquiry Card—Page 17

NEW INFORMATION FOR YOUR

Catalog Files



INSERT BITS, HOLDERS SAVE TOOL COSTS

How Phillips insert bits and holders save money in tool costs, increase production efficiency, reduce the number of rejects and safeguard quality is subject of a 16-page pamphlet.

Continental Screw Co.

Circle No. 1 on Inquiry Card—Page 17

NON-SPARKING ALLOY

Properties of "Alcaloy," an alloy of copper and aluminum, and products made from it, are described and illustrated in a 32-page catalog. Alloy is non-sparking, non-magnetic, resists corrosion.

Alcaloy Inc.

Circle No. 2 on Inquiry Card—Page 17

TAPES FOR INDUSTRY

A 48-page tape use manual is a handbook of industrial tape applications, classified by industries and specified jobs. It is a basic source book for all current industrial usage.

Polyken Dept., Kendall Co.

Circle No. 3 on Inquiry Card—Page 17

CLEANING DEVICES REDUCE COSTS

Finishing techniques are covered in a series of catalogs. No. 74-C deals wth airless blast cleaning; No. 101-D with die casting finishing; No. 864 with descaling; No. 451-D with wet blasting.

American Wheelabrator & Equipment Corp.

Circle No. 4 on Inquiry Card—Page 17

TUBING FOR HEAT EXCHANGERS, CONDENSERS

A 12-page illustrated brochure fully covers the use of carbon steel tubing for heat exchangers and condensers. Photos are used to show how company's tubing meets required specifications.

Steel & Tube Div., Republic Steel Corp.

Circle No. 5 on Inquiry Card—Page 17

OIL-TIGHT PUSH BUTTONS

Complete information on product features and applications of a line of oil-tight push buttons, lights and combination units and accessories is contained in bulletin GEA-5779B.

General Electric Co.

Circle No. 6 on Inquiry Card—Page 17

SIZING HOLES FOR DOWEL PINS

An illustrated 4-page folder shows a complete line of precision dowel pins, both standard size and oversize. A section gives simple facts for sizing holes to receive dowel pins.

Danly Machine Specialties, Inc.

Circle No. 7 on Inquiry Card—Page 17

GRINDING MACHINES DESCRIBED

Specifications, and extra equipment for 10″ and 14″ plain hydraulic cylindrical grinding machines are detailed in catalog B-54. Grinding operations, performed by the machines, are listed.

Landis Tool Co.

Circle No. 8 on Inquiry Card—Page 17

METAL WORKING MACHINES

Automatic machines, special tools and mill balancing machines are described and illustrated in a 12-page, 2-color, 8½″ x 12″ catalog. A section deals with automation.

Snyder Tool & Enrg. Co.

Circle No. 9 on Inquiry Card—Page 17

FACTS ABOUT AIR REDUCTION

A 36-page illustrated, 2-color booklet shows how Air Reduction techniques and equipment serve virtually every type of industry. The company's facilities to provide these are described.

Air Reduction Co., Inc.

Circle No. 10 on Inquiry Card—Page 17

HEAVY DUTY SCREENING

Design and construction of vibrating screens for scalping, sizing, dewatering and rinsing are covered in 12-page booklet No. 2554. Hints are given on screen selection.

Link-Belt Co.

Circle No. 11 on Inquiry Card—Page 17

HIGH PRECISION GAGES

Illustrated loose-leaf 28-page booklet discusses a line of "ultra-finish" rectangular and Hoke type gage blocks, in steel and tungsten carbide. A section tells how to care for gage blocks.

Fonda Gage Corp.

Circle No. 12 on Inquiry Card—Page 17

QUIET OPERATING SYNCHRONOUS MOTORS

Over 125 hysteresis and salient pole induction synchronous motors are covered in brochure EI-4A, which is replete with photos and line drawings. Performance data and characteristics are given.

Electric Indicator Co., Inc.

Circle No. 13 on Inquiry Card—Page 17

LIFTING WHILE YOU WEIGH

Crane scales, with capacities from ½ to 50 tons, that weigh objects as they are lifted are described in 12-page illustrated bulletin No. 4304. Instrumentation can remote-record weight.

Baldwin-Lima-Hamilton Corp.

Circle No. 14 on Inquiry Card—Page 17

MOUNTING AFFECTS MACHINERY OUTPUT

How mobile mounts, such as leveling or spring mounts, pay off in higher production and lower output costs is demonstrated in an 8-page bulletin. Charts help to select proper machine mount.

Barry Controls Inc.

Circle No. 15 on Inquiry Card—Page 17

PROTECT PLANT PERSONNEL

Some 300 safety products to protect industrial workers against body injuries are described and illustrated in a 64-page bulletin, No. 54. Eye, lung and head protection are covered.

Willson Products, Inc.

Circle No. 16 on Inquiry Card—Page 17

INDUSTRIAL LUBRICANTS CLASSIFIED

Reprint of an article in April issue of *Lubrication* shows standard classification of oils and greases related to major industrial applications and operating conditions.

Texas Co.

Circle No. 17 on Inquiry Card—Page 17

INTERVAL TIMERS

A 2-color, 8-page bulletin, PB-210, discusses timers that control the opening of one circuit and the closing of another for a manually selected time interval. Exploded views are shown.

R. W. Cramer Co.

Circle No. 18 on Inquiry Card—Page 17

WIREBOUND CRATES SAVE SHIPPING COSTS

A colorful, highly illustrated booklet shows how engineered wirebound containers are economically used to replace costly custom-built crates in packing and shipping equipment weighing many tons.

General Box Co.

Circle No. 19 on Inquiry Card—Page 17

HIGH SPEED STEEL TOOLS THAT LAST

A 4-page, 3-color folder explains why forged high speed tools outlast and outperform conventional high speed tools that are not forged. Standard forged units from stock are listed.

Nelco Tool Co., Inc.

Circle No. 20 on Inquiry Card—Page 17

INSTRUMENTS TO CONTROL AND RECORD VARIABLES

A composite catalog, No. 5002, briefly describes industrial instruments and equipment to indicate, record and control variables. Each description refers to more detailed literature.

Minneapolis-Honeywell Regulator Co.

Circle No. 21 on Inquiry Card—Page 17

POWER QUILL OPERATES AT 45,000 RPM

A general, 20-page catalog contains valuable information on grinder-millers and power quills. It describes a new power quill unit, with a ½ hp motor that can operate at speeds of 45,000 rpm.

Precise Products Corp.

Circle No. 22 on Inquiry Card—Page 17

DISC GRINDERS, FEED FIXTURES

A fully illustrated 16-page catalog contains application and construction information on double horizontal disc grinders in sizes from 3 to 50 hp. Also described are several types of work feeds.

Besly-Welles Corp.

Circle No. 23 on Inquiry Card—Page 17

NO FIRE HAZARD IN HYDRAULIC SYSTEMS

A 24-page brochure describes "Pydraul F-9," a fire-resistant fluid for hydraulic equipment operating near sources of ignition. Its applications and properties are described.

Monsanto Chemical Co.

Circle No. 24 on Inquiry Card—Page 17

TOOLMAKING FACILITIES DESCRIBED

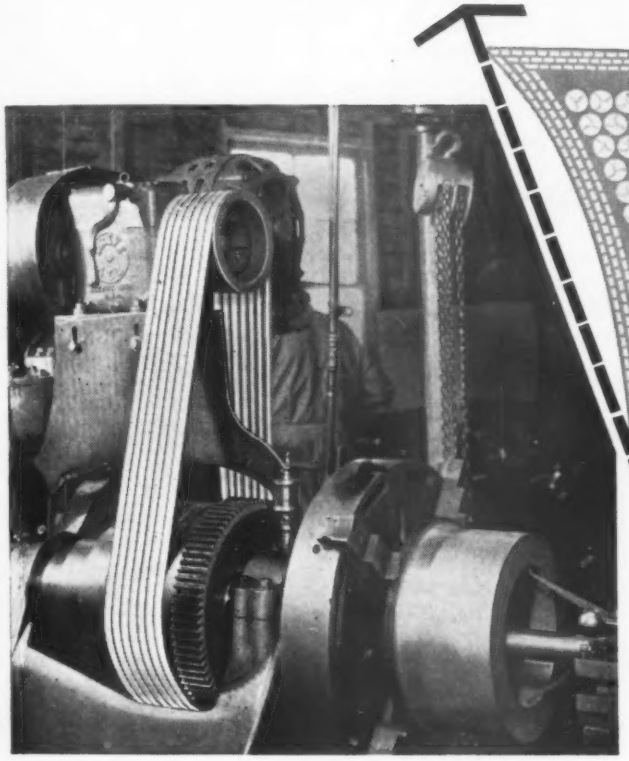
Facilities for producing high precision tools, dies and gages are described with copious photographs in a 28-page brochure. It takes you on a working tour of a modern plant.

Ehrhardt Tool & Machine Co.

Circle No. 25 on Inquiry Card—Page 17

Circle Card Opposite Page 17
to Obtain These Catalogs
Additional Catalogs on Page 20

"Secret" of *lower* belt costs is concave sides





By converting the drive on this lathe to Gates Vulco Ropes, drive slippage was ended. Under heavy load, the Gates Vulco Ropes grip pulley grooves more firmly and pull harder. Management states that now that the lathe can take heavier cuts, they are getting twice as much production as before.



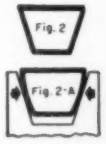
Plants that keep track of costs on drives know this: they get longer wear at *lower cost per year of service* when they specify Gates Vulco Ropes—the V-Belts with *concave sides.*



Here's WHY concave sides keep belt costs down:

When the Gates belt is bent around the sheave, the *precisely engineered* concave sides (Fig. 1) fill out and become straight (Fig. 1-A). Thus the belt makes uniform contact with the sides of the pulley.

This full, uniform contact assures *even distribution of wear.* Naturally, *even wear* means *longer wear.* And longer wear cuts belt replacement costs...reduces down time...contributes to profits.



Prove to yourself the value of concave sides

Bend a straight-sided belt (Fig. 2) and feel the sides *bulge out* around the bend. You see immediately that the bulging sides prevent an even fit in the pulley groove (Fig. 2-A). Uneven contact causes faster wear...increases belt replacement costs.

Reduce costs and down time for belt replacements—specify Gates Vulco Rope Drives—the V-Belt with *concave sides* (U.S. Patent 1813698). The Gates Rubber Co., Denver, Colorado—*World's Largest Maker of V-Belts.*

Gates Engineering Offices and Distributor Stocks are located in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.

TPA 46-A

GATES VULCO ROPE DRIVES

For More Information Circle No. 517 on Inquiry Card—Page 17

HELP FOR PLYWOOD USERS

Fir plywood grades and application data are contained in condensed tabular form in a 4-page basic catalog. Type-use recommendations and engineering data facilitate task of plywood users.

Douglas Fir Wood Association

Circle No. 26 on Inquiry Card—Page 17

SIMPLIFIED PACKAGING

Exterior and interior packing for every type of industrial product is covered in an illustrated loose leaf folder. Actual case histories of savings are shown.

Sherman Paper Products Corp.

Circle No. 27 on Inquiry Card—Page 17

CUSTOM GLASS FOR INDUSTRIAL USES

A wide variety of glass parts for the appliance and other industries is covered in a richly illustrated catalog. It outlines properties that give glass wide design potentials.

The Lancaster Lens Co.

Circle No. 28 on Inquiry Card—Page 17

MACHINING NON-FERROUS CASTINGS

"Aluminum Castings P. D. Q." is an eight page three color brochure describing case histories and services in production and machining of non-ferrous castings.

Wayne Aluminum Foundry & Machine Co.

Circle No. 29 on Inquiry Card—Page 17

DATA ON CLAMPS, FIXTURES

A catalog of clamp assemblies and fixtures, offering a complete line of each, saves time for the tool designer and the purchasing agent, as parts are standard.

West Point Mfg. Co.

Circle No. 30 on Inquiry Card—Page 17

ORDERING BRONZE, IRON-BODY VALVES

A reference manual facilitates specification, ordering and using bronze and iron-body valves. It gives figure numbers of valves equivalent in application with valves of other manufacturers.

The Fairbanks Co.

Circle No. 31 on Inquiry Card—Page 17

WHAT POWER TRANSMISSION TO SELECT

Four fully illustrated catalogs contain dimensional, engineering and selection information on V-belt drives (WBC); flat-belt (FBC); speed reducers (SRC) and steel conveyor pulleys (CPC).

American Pulley Co.

Circle No. 32 on Inquiry Card—Page 17

VERSATILITY OF PARALLEL SHAFT GEARS

A variety of parallel shaft gear drives, with capacities from fractional to over 2000 hp and with ratios from 1.2:1 to 323:1 are covered in illustrated book No. 2619 (32 pp).

Link-Belt Co.

Circle No. 33 on Inquiry Card—Page 17

WELDING, OVERLAYING BASE METALS

Over 300 "low-heat-input" metal joining applications form the text of 32-page "DirectoRod Guide," No. TIS 1340A. Two-color illustrations point up time and money saving data.

Eutectic Welding Alloy Corp.

Circle No. 34 on Inquiry Card—Page 17

TOOLHOLDERS FOR CARBIDE BLANKS, INSERTS

Catalog V-R-435B deals with style RBR-RBL toolholders available for the first time for "Throw-Away" carbide blanks and round 1½" long carbide inserts. Seven sizes are described with prices.

Vascoloy-Ramet Corp.

Circle No. 35 on Inquiry Card—Page 17

BENEFITS OF PHOSPHATE COATINGS

The process by which iron phosphate coatings improve paint adherence and prevent corrosion is explained in 12-page booklet, full of drawings and photos. Request on company letterhead.

Oakite Products, Inc.

Circle No. 36 on Inquiry Card—Page 17

ORDERING STOCK CLOSURES, STAMPINGS

A 38-page, illustrated catalog gives specifications of hundreds of standard precision drawn closures and quality metal stampings. It will minimize need to specify custom designs and save costs.

Hudson Tool & Die Co.

Circle No. 37 on Inquiry Card—Page 17

CHAIN, SLINGS FOR RUGGED USE

Properties of double-U welded chain made from high alloy steels in diam up to 2" to stand temperatures of 1000F are described in bulletin AA. A section deals with selection of slings.

The McKay Co.

Circle No. 38 on Inquiry Card—Page 17

WOOD SCREWS, PHILLIPS AND SLOTTED

A 10-page guide outlines the sizes and finishes available from a packaged stock of wood screws, Phillips and slotted. Finishes are variously plain, cadmium, nickel, galvanized, chrome, etc.

Southern Screw Co.

Circle No. 39 on Inquiry Card—Page 17

INDEX TABLES PERMIT HIGH SPEED OUTPUT

Catalog No. 300 contains assembly drawings, load ratings and dimensions of over 150 index table models. They are available with 4 to 36 work stations. Some produce 30,000 pieces an hour.

Roller Gear Div., Ferguson Machine & Tool Co.

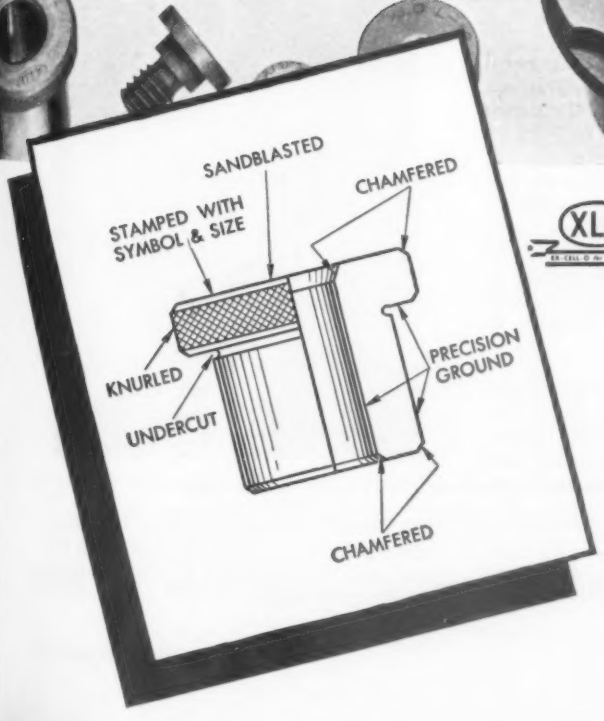
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to Obtain These Catalogs

Look for These Features in Drill Bushings

EX-CELL-O HAS THEM ALL

- **MATERIAL**—High chrome and carbon oil-hardening steel for maximum wear.
- **FINISH**—precision ground inside and out, and under the head for perfect bearing.
- **CONCENTRICITY**—assured by grinding on arbors after the holes are finished.
- **HARDNESS**—Deep-hardened to 62-64 Rockwell "C" in automatic equipment.
- **UNIFORMITY**—of material, dimensions, finish, and hardness assure accuracy, long life for both bushings and tools.
- **PROMPT DELIVERY**—from stocks of standard sizes in Detroit, New York, Los Angeles, and London, Canada.
- **PREFERRED**—largest bushing users in the country are Ex-Cell-O customers.



XLO



Your purchasing and engineering departments should have copies of this Ex-Cell-O Bushing Catalog No. 35936. Just ask for the number of copies you would like.

EX-CELL-O CORPORATION

DETROIT 32, MICHIGAN

MANUFACTURERS OF PRECISION MACHINE TOOLS • GRINDING SPINDLES
CUTTING TOOLS • RAILROAD PINS AND BUSHINGS • DRILL JIG BUSHINGS
AIRCRAFT AND MISCELLANEOUS PRODUCTION PARTS • DAIRY EQUIPMENT

NEWS OF YOUR Suppliers



M. Nielsen, vice president of **The Babcock & Wilcox Co., New York,** has



M. Nielsen

been elected to the newly created post of executive vice president.

Paul B. Shiring, formerly sales executive for Westinghouse at Buffalo, N. Y., has been named electric utility manager for the northeastern region by **Westinghouse Electric Corp., Pittsburgh.**

The Chas. A. Strelinger Co., Detroit, has been appointed warehouse distributor for Berylco non-sparking safety tools produced by the **Beryllium Corp., Reading, Pa.** They will serve the state of Michigan.

The Wheelco Instruments Division, Barber-Colman Co., Rockford, Ill., has appointed the R. H. Wittbold Co., Houston, Texas, as exclusive representative for Wheelco industrial instruments and combustion safeguards in the Houston area. At the same time, it was announced that Swieco, Inc., will handle the Wheelco line in the Fort Worth area.

The Kerite Co., New York, manufacturers of insulated wire and cable, has named L. W. Eighmy, Jr., as manager of its Power Department. Mr. Eighmy has been with the firm since 1936.

William L. Wolfe is now vice president—sales of **Jones & Laughlin Steel Corporation's Supply Division, Tulsa, Okla.** He had been assistant to the vice president—sales of J&L's general office in Pittsburgh.

Hope Rubber Co., Inc., has been franchised as a distributor of tube fittings by **The Parker Appliance Co., Cleveland.**



H. L. Cummings

H. L. Cummings is now general manager of the R-P&C Valve Division, **American Chain & Cable Co., Inc., Reading, Pa.**

Fairbanks, Morse & Co., Chicago, has named John C. Elmburg as assistant general sales manager. He succeeds Harry Hilleary, who is retiring June 30th after 35 years with the company. Mr. Elmburg is succeeded as Portland, Ore., branch manager by William F. Wahlenmaier.

The Hammel-Dahl Co., Providence, has appointed the Russell F. Clark Co., Pittsburgh, as sales and service representative. The Clark organization will cover western Pennsylvania and part of West Virginia.

Paul E. Kell is now Wisconsin representative for the **Hinde & Dauch Paper Co., Sandusky, Ohio.**

The Automotive Division of **Clark Equipment Co., Buchanan, Mich.,** has opened a field office in Tulsa, Okla., to provide sales, parts and service for its axles, transmissions, torque converters, etc. Wade A. Eskridge has been named manager of the office. The territory he will serve includes Oklahoma, Texas, Kansas, Colorado, Missouri, Arkansas, Louisiana, Lea County in New Mexico, and Shelby County in Tennessee.

Hopper & Son has been made an exclusive sales representative for **Alloy Precision Castings Co., Cleveland.** The firm will cover western Pennsylvania, northern West Virginia, and southeastern Ohio.

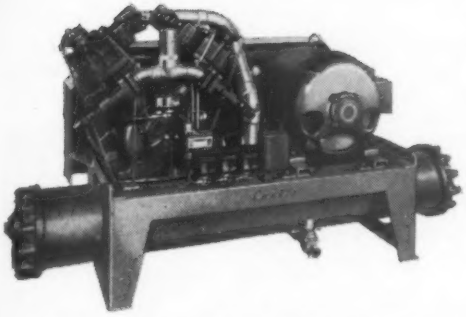
Lincoln Engineering Co., St. Louis, Mo., has named Robert E. Crean as manager of the company's Philadelphia industrial branch sales office. He succeeds M. C. Hazenfield, who has retired.

Continental Can Co., New York, has announced the appointment of James O. Otis as industrial sales manager of

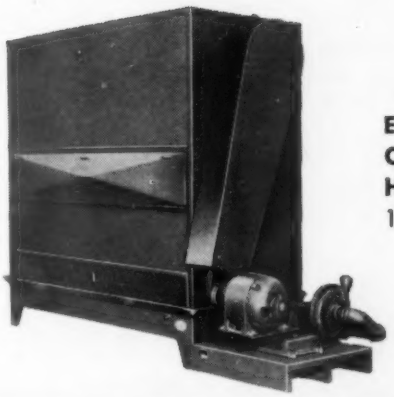


J. A. Otis

its Conolit Division, which manufactures polyester laminated products. Mr. Otis will headquarter at Continental's Wilmington office.



Refrigeration Condensing Units ... up to 100 tons capacity



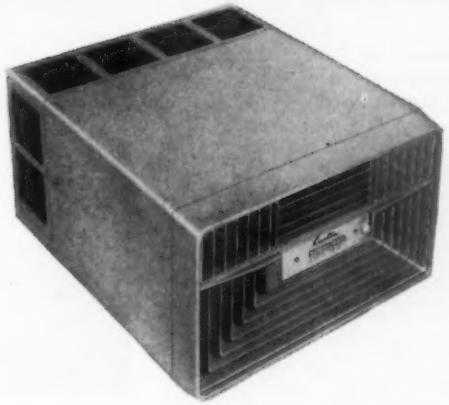
Evaporative Condensers, Cooling Towers and Air Handling Units ... up to 100 tons capacity

for Refrigeration
Air Conditioning
Air-Powered
Industrial Equipment

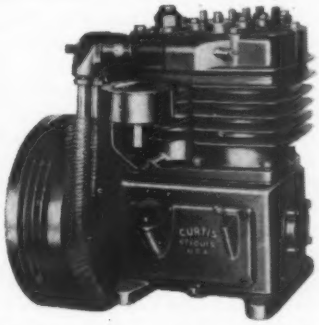
BUY *Curtis*
WITH CONFIDENCE!
A famous name for over a century



Package Air Conditioners ... 2, 3, 5, 7½ and 10 ton units—15 and 20 ton central type units

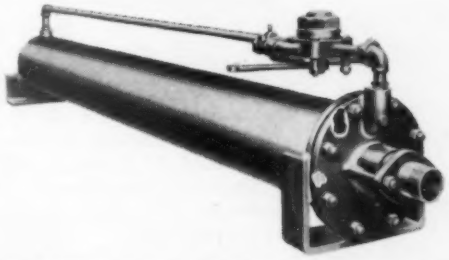


Window Air Conditioners ... deluxe models up to 1½ tons



Compressors ... up to 50 H.P., delivering up to 300 cubic feet of air per minute ... precision built for minimum maintenance

Air Cylinders and Air Hoists ... for lifting and lowering, Curtis Pendant Air Hoists provide safe, dependable power ... for pushing or pulling, Curtis Air Cylinders can be mounted in any position





838

For complete information ... including prices ... write:

CURTIS MANUFACTURING COMPANY • **1908 Kienlen Avenue** • **St. Louis 20, Missouri**

For More Information Circle No. 519 on Inquiry Card—Page 17

The Air Brake Division, **Westinghouse Air Brake Co., Wilmerding, Pa.**, has formed a new Special Products



D. L. Shelly

Group to expand the division's manufacturing and marketing activities. DeWitt L. Shelly has been named manager of the group.

The appointment of Max DeZemplen as general sales manager has been announced by **Voi-Shan Mfg. Co., Culver City, Calif.**

The appointment of Lester A. Edwards as assistant sales manager of **The Cincinnati Gear Company** has been announced.

The Steel Sales Division of the **Timken Roller Bearing Co., Canton**, has announced several promotions and transfers in its sales department. W. J. Brigham, formerly district manager of the company's Cincinnati office, replaces the late Harry Lilley as district manager in Detroit. John J. McGrann, former Houston district manager, succeeds Mr. Brigham at Cincinnati. Taking Mr. McGrann's place in Houston is Ralph Preston, formerly a sales engineer in the office. Finally, the company has assigned Edwin E. Lightfoot to the Houston office as a sales engineer.

W. Harold Gamble is now a sales representative in Rhode Island for **Edgcomb Steel of New England, Inc., Nashua, N. H.**

Henry J. Counch has been appointed manager of the Chicago district office of the **Connor Engineering Corp., Danbury, Conn.**

F. L. Humphrey, Jr., is now district manager in Atlanta, Ga., for the **Elliott Co., Jeanette, Pa.**

Hugh C. Land has been named to succeed William P. Drake as head of the Industrial Chemicals Division of **Pennsylvania Salt Mfg. Co., Philadelphia.** Mr. Drake was recently named executive vice president. As general manager of the division, Mr. Land will direct both production and sales activities.

F. J. Stokes Machine Co., Philadelphia, has opened two new offices, one in Mt. Vernon, N. Y., and the other in Union, N. J. J. C. Coleman is district manager at the Mt. Vernon office, and Ralph H. Stalbaum is in charge of the branch in Union. It was also announced that William J. Leighton has joined the Philadelphia district sales office as a sales engineer.

The Engineering, Refrigeration Division of Essex Wire Corp., De Kalb, Ill., has named William A. Jay as manager of sales.

Hugh Hudson has been appointed sales engineer for the West Coast Division of **Baughman Mfg. Co., Inc., Jerseyville, Ill.** He will cover Oregon, Washington, Idaho, Montana, Arizona, Wyoming, Colorado, Utah, Nevada and California. He will also handle Canada's British Columbia and Alberta.

Union Bag & Paper Corp., New York, has announced three promotions in its corrugated container sales division. C. A. Agar, Jr., former eastern division sales manager, has been named



C. A. Agar



R. J. Larsen

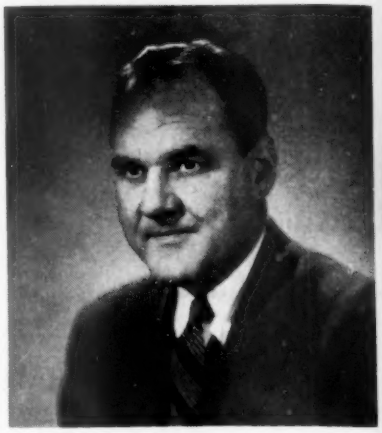


L. A. Wulff

national accounts representative for the eastern sales division. A former sales representative, R. J. Larsen has been made eastern division sales manager. And, L. A. Wulff moves up from assistant to the western division sales manager to the post of western division sales manager.

The appointments of Wilson M. Milligan as east coast division sales manager, and Randy J. Murphey as regional manager for northern California, have been announced by **Granberg Corp., Oakland, Calif.**

Jal E. Aune has been named a district sales manager for **DeWalt Inc., Lancaster, Pa.** Mr. Aune's territory,



J. E. Aune

designated the Milwaukee district, consists of the portion of Wisconsin south of Green Bay, and the northern half of Illinois, excluding Chicago.

The Aro Equipment Corp., Bryan, Ohio, has announced promotions for two members of its Aircraft Products Division. R. B. Blythe has been named assistant to the vice president and will direct activities relating to the sale of new aircraft products. D. W. Orrick, formerly with the division in Los Angeles and lately eastern regional manager, has been made sales manager of aircraft products.

Theodore W. Chase has been appointed manager of the Coupling Department, Metal Products Division, **Koppers Co., Inc., Baltimore, Md.**

Byron E. Grant has been named assistant sales manager for Braden Copper Co., Chilean division of **Kennecott Copper Corp., New York.**

To provide on-the-spot service in the midwestern states, **Micrometrical Mfg. Co., Ann Arbor, Mich.**, has appointed four firms as Profilometer representatives. Service Tool and Engineering Co., Minneapolis, for North Dakota, most of South Dakota, Minnesota and northern Wisconsin; Fuchs Machinery and Supply Co. will cover Nebraska and western Iowa out of its Omaha and Sioux City offices, and Kansas and western Missouri out of Wichita, Joplin and Kansas City offices; Marshall Supply and Equipment Co., Tulsa, will handle Oklahoma and western Arkansas; and Stanco Co., will cover northern Texas and northern Louisiana out of their Dallas office, and southern Texas and southern Louisiana out of Houston.

W. C. Twigg Industries, Inc., Brazil, Ind., has named W. L. Wilkinson as sales manager.

The Foxboro Co., Foxboro, Mass., has appointed C. C. Fuller as a vice president, H. O. Ehrisman as general sales manager, and J. J. Burnett as field sales manager.

IDEA of the CENTURY

In the past hundred years, the one revolutionary idea in threaded fasteners was pioneered by Parker-Kalon . . . hardened Self-tapping Screws.

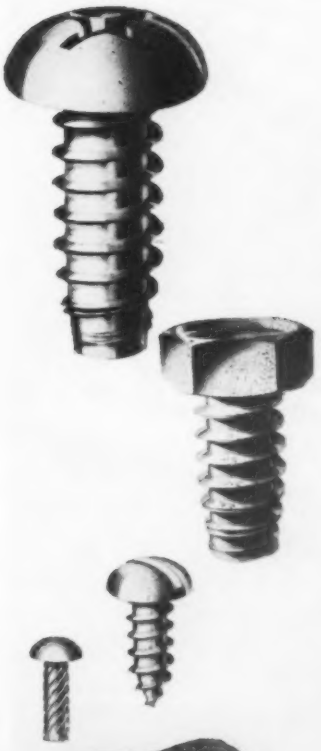
They offered simplicity, speed, and security for fastenings to metals, plastics, laminates, — savings impossible with conventional methods. They inspired the modern assembly techniques essential to mass production. Their contribution to cost reduction mounts by millions every year.

For almost any assembly, there's a big potential saving with Self-tapping Screws. But the promise can fade in production if screw failure snarls up the line. That's why quality standards for P-K Self-tapping Screws were set so high to begin with, and are still harder to match today.

Only Parker-Kalon can offer P-K quality, the indispensable extra, along with the proved advantages of Self-tapping Screws.

Only Parker-Kalon can offer P-K experience — covering many more years and millions more applications than any comparable record.

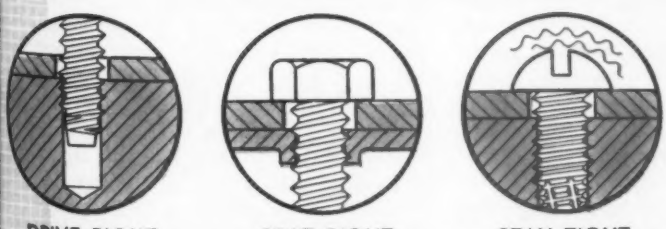
Plan your assemblies for lowest cost . . . a P-K Assembly Engineer will help you. Then make sure *planned* savings keep on *paying off* . . . when you purchase, order "P-K". Parker-Kalon Division, General American Transportation Corporation, 200 Varick St., New York 14.



The First originated by P-K . . . and *first* today . . . the leading choice for fastening economy

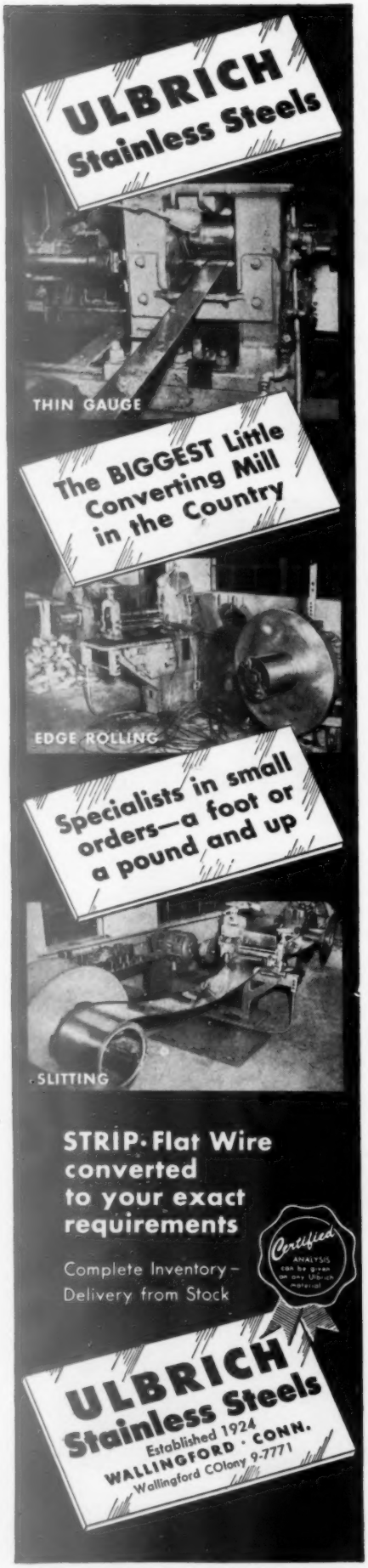
SELF-TAPPING SCREWS





. DRIVE RIGHT . . . SEAT RIGHT . . . STAY TIGHT . . . **P-K** means **OK**

For More Information Circle No. 521 on Inquiry Card—Page 17



For More Information Circle No. 522
on Inquiry Card—Page 17

F.O.B.



FILOSOFY OF BUYING



REFRESHING as a cool breeze on these hot days is the sign that greets visiting salesmen as they pull into the parking lot at Hydraulic Press Mfg. Co., Mount Gilead, Ohio. "Be comfortable," it says. "Remove your coat if you care to. We work without ours."

• •

THE other day we ran across an old friend in the purchasing field who had recently had the initials "V. P." tacked onto his title. We congratulated him and asked how it felt. His reply: "I feel like a fellow who has been going to college 23 years to get his degree."

• •

BUYERS prefer long haired blondes, according to an Associated Press story commenting on the problem of the purchasing agent for an instrument company, who has to procure a half million strands of blond human hair annually for use in humidity recorders. It's the only known substance suitable for the purpose, he says, having the unique property of absorbing moisture and giving it up at the same rate. The resulting changes in tension actuate levers which record the humidity. Pigmentation alters this property. Modern hair styling and beauty habits make his problem more difficult, for he has to get it in 14-inch lengths, untouched by dyes or curling irons. He gets quite a few offers, but many of them don't meet the specification. Altogether, it's quite a chore to accumulate his annual requirement of 100 ounces. It takes about 5000 14-inch hairs to make an ounce.

• •

ANOTHER hard-to-get item is reported in a recent issue of *Purchase News*, a modest publication issued by the New York City Purchasing Department. This plaintive story tells of the difficulty of getting rubber horseshoe pads for Police Department steeds—a rather specialized but essential requirement for the City's "mounties" patrolling hard pavements. There's only one firm in the business, a reliable old-line concern that has been at it for 100 years, and prices are going up. If your horse wears a No. 2 size shoe, the pads cost 73 cents; for No. 6, it's $1.13. "We have covered the

entire country for another source of pads, but have not been able to uncover any," reports the buyer. "We have tried to interest other vendors to make molds and give our only source a little competition, but our annual requirements are too small to interest anyone."

• •

TRIPLE-THREAT public servant was busy R. A. Floyd of Chula Vista, Cal., who for two years held the multiple office of city administrator, city engineer, and city purchasing agent. Earlier this year, the city council reviewed the situation and decided to let him go on engineering but to bring in additional personnel to handle the other two jobs.

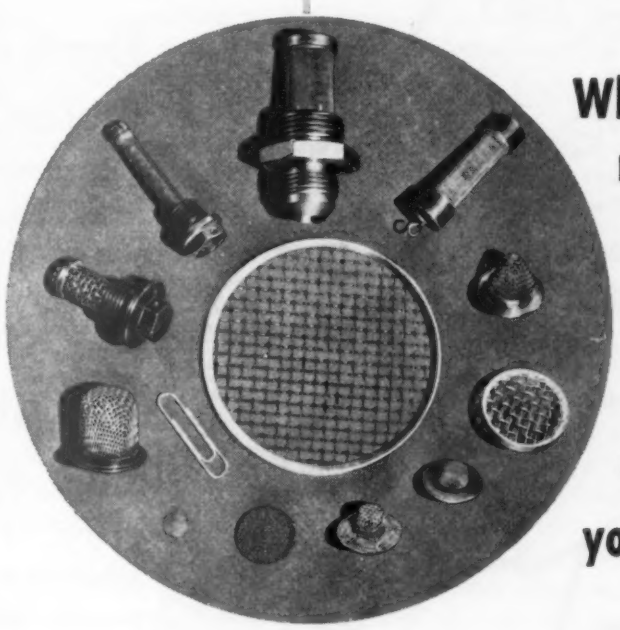
"Combining the three jobs in one person saved money—on paper—by eliminating two salaries," said Mayor Mansell, " but the work probably suffered. As engineer, Floyd could say he needed equipment; as purchasing agent, he could dicker for it; and as administrator, buy it. The Council had little internal control of city affairs under that kind of set-up."

• •

AMONG the seasonal factors affecting prices is spring housecleaning, says P. A. Leo Styer of Michigan Carton Co., interviewed by the Battle Creek *Enquirer-News*. Mr. Styer buys about 90,000 tons of scrap paper annually. He has noted that with the arrival of sunny, warm, spring days, which inspire neater garages and basements, the little woman issues her "get rid of those old papers" edict, and about May 1st prices begin to slide off by as much as 50% as the domestic accumulations come to market. Another factor of supply is the increasing use of gas and oil heating systems. Coal burning furnaces are a major factor in the home consumption of old newspapers, and the drop in such facilities makes many more tons of scrap available for paper mill use. Many householders drive into the salvage yards and dump their papers without waiting for payment, apparently grateful to have a place where they can dispose of the winter's accumulation.

ARE SMALL MESH PARTS A BIG PROBLEM?

Small parts made with wire cloth, similar to those illustrated, or big parts for that matter, can be troublesome to fabricate.



Why not let us make them for you?

WE have ample facilities and skilled workmen to produce these parts in small lots or in production quantities. We use NEWARK WIRE CLOTH, woven in our own plant — thereby assuring a steady supply of material — good material. Our years of experience gained in working with wire cloth assures you of quality workmanship to your exact specifications.

If desired, our engineers will be glad to work with you in the design of the part in order to assure the best use of the cloth and economy of production. Let us quote you on your requirements.

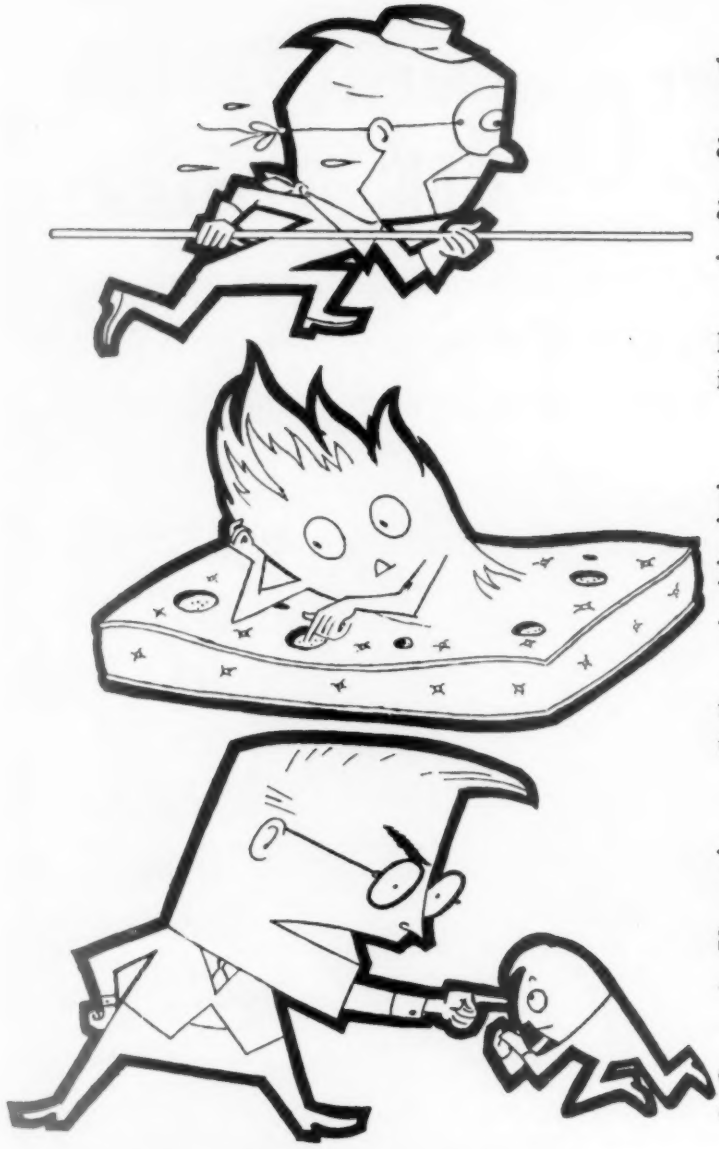
NEWARK for ACCURACY

We can furnish wire cloth woven from all commercially used metals. Sizes range from 4 inches (space cloth) to 400 mesh.

Newark Wire Cloth COMPANY

351 VERONA AVENUE • NEWARK 4, NEW JERSEY

For More Information Circle No. 523 on Inquiry Card—Page 17



Why is the fireman always poking at the fire today?

We have a new lot of coal and it clinkers badly. He's digging the clinkers out and covering up holes in the fuelbed.

Don't holes in the fuelbed make clinkers?

They sure do! And the air required for combustion goes through these holes and we can't keep the steam pressure up.

Why did we buy such coal?

Well, it was a few cents cheaper and we didn't consider the analyses so nobody realized it had such a low clinkering temperature.



So we save pennies on the coal and blow dollars up the chimney!

Yes sir! That's about the size of it. But just as soon as this lot is used up, we're going back to the old coal. That was specified for us by the Chesapeake and Ohio Fuel Service Engineers to give us the lowest *steam cost* with our type of stoker and boiler. We should have stuck with the coal they recommended – it never gave us a bit of trouble.

P.S.

There's a lot more to buying coal than the cost per ton. For facts and figures to solve your particular fuel requirements, write to: R. C. Riedinger, General Coal Traffic Manager, Chesapeake & Ohio Railway Company, Terminal Tower, Cleveland 1, Ohio.

Chesapeake and Ohio Railway

WORLD'S LARGEST CARRIER OF BITUMINOUS COAL

THE VALUE QUOTIENT

. . . measure of creative buying

PURCHASING Is A Profit Making Function. This is the slogan to which modern professional purchasing has keyed its thinking, its effort, and its progress. It is the theme that justifies the position of purchasing as a member of the management team, a significant contributor to the company's prosperity. It is a statement of a principle and a goal, with a tremendously rich potential for the buyer and the company who will follow this star.

Perhaps, for the benefit of those skeptics and cynics, in management and in purchasing itself, who have not yet accepted this principle and goal, we should modify the slogan, yet without detracting in any degree from its validity and force.

Purchasing *Can Be* A Profit Making Function. Putting it this way places it right on the practical level of ways and means.

Purchasing profits depend on purchasing proficiency. There are thousands of efficient buyers in industry today. They administer their departments well, search the markets diligently for the things they are asked to procure, negotiate sound contracts, and provide a reliable service of supply for operating departments. They commit few costly errors.

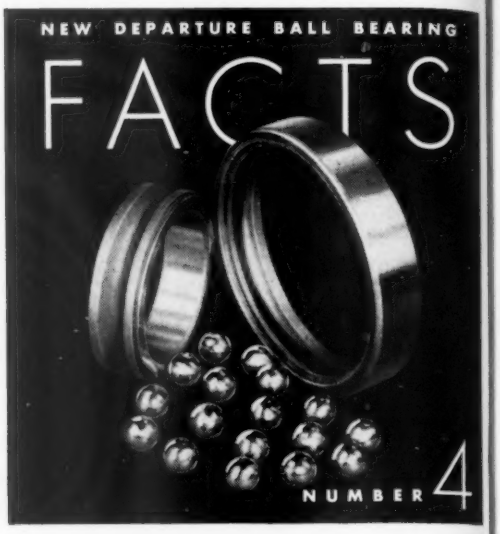
But your really proficient buyer is the one who goes beyond these fundamentals, actively seeking new opportunities and sources of savings where they did not previously exist. He goes behind the requisition to the requirement. His Value Quotient is high. He considers greater value, and still greater value, as his primary objective, with materials, products and services as the means for attaining it. By so doing, he makes the hits that show up in the profit score.

The Value Quotient is something that can be acquired and developed. It is, first of all, a state of mind. In a sense, the proficient purchaser must always be a pioneer. But he need no longer follow an uncharted path to unknown frontiers. There is a rich store of experience in organization, program, method, and technique to guide him. The essentials of this experience—a whole new science of purchasing—are presented within these pages.

In the company and in the purchasing department that will follow this guide, Purchasing *Is* A Profit Making Function.

Stuart F. Heinritz

Answering the need for VERSATILITY in electric motors!





This Delco general-purpose, drip-proof motor is equipped with New Departure self-enclosed ball bearings. They not only assure permanently accurate support of the rotor shaft under all load conditions, but in normal operation they reduce bearing lubricating requirements to just about zero. However, should extra-severe conditions warrant it, the lubricant can be replenished quickly by removing the pipe plugs.

Note that the bearings have built-in seals on the inside faces, thereby preventing grease leakage into the motor, and the outer faces have metal shields which keep foreign matter out of the bearings. The shields do, however, permit entry of just the right amount of grease from the space in the end bell for perfect bearing operation, yet prevent excessive lubrication which could cause overheating.

End applications for modern electric motors are extremely varied. They may be mounted in positions from horizontal to vertical. Radial and thrust loads may be encountered in numerous combinations. Mounting locations may make periodic lubrication difficult or costly. Atmospheres may be charged with abrasive dust, or extreme cleanliness may be mandatory, with no lubricant leakage allowable.

All these conditions are directly related to the motor bearings—in fact *the versatility of a motor, or its ability to meet them, depends on the bearings used.*

BALL BEARINGS ARE THE ANSWER

Among the important features of the ball bearing are its ability to resist loads imposed from any direction and to locate rotating parts accurately and positively for many years of service. In electric motors accurate rotor-to-stator relationship is maintained regardless of mounting position, and bearings are cool-running at all speeds.

Lubrication factors are important too. Motors equipped with New Departure self-sealed or shielded bearings may be installed in difficult-to-reach places because the bearings will operate for years under normal conditions without attention for lubrication or adjustments of any kind.

With New Departure self-sealed, grease-lubricated ball bearings, lubricant leakage is no problem and the bearings are fully protected from abrasive dirt.

Just as New Departure has pioneered bearing developments which have added so greatly to the versatility of today's electric motors, so will New Departure be first with the bearing advances of tomorrow. New Departure, Division of General Motors Corporation, Bristol, Connecticut.



NEW DEPARTURE
BALL BEARINGS

NOTHING ROLLS LIKE A BALL

For More Information Circle No. 528 on Inquiry Card—Page 17

HOW to use this issue for cost reduction

Everything in this edition of Purchasing has been specially prepared to help you cut costs. To get full advantage from the wealth of information and advice it contains, check every page of every section. These are the features that have been designed with the same basic purpose—to help your cost reduction program:

- **"VALUE ANALYSIS**—Purchasing's Part in Cost Reduction" is a veritable handbook on the newest, most scientific approach to buying. Based on the experience of many companies, it gives you straightforward, specific explanations on what Value Analysis is, how it works, and how you can get a Value Analysis program going in your own company. It shows you how to apply the principles of Value Analysis to your own situation, whether yours is a large or a small company, and regardless of the industry you are in. The article has been organized so that you can start from scratch and read it as an integrated manual of instruction, or go directly to any phase of Value Analysis that is of special interest to you at the moment.

- **CASE HISTORIES** of actual, measurable savings through the use of various materials, processes, supplies and equipment appear in special, easy-to-reach sections, under the following headings: Production Tools and Processes, Electrical Equipment, Materials, Component Parts, Packaging & Shipping, Materials Handling, M.R.O. Supplies, and Office Equipment. Hundreds of these case histories are evidence of how the application of value analysis pays off. They provide you with an "idea file" for saving money for your company.

- **ADVERTISEMENTS** featuring money-saving ideas, and news of new and improved products, appear in these special sections. A careful check of them will keep you abreast of latest developments among your suppliers, help you develop new sources, and increase your opportunities for value buying.

THE READER SERVICE CARD opposite Page 17 is your simple, handy method for getting more information on any product or service mentioned in the issue. Every case history and every advertisement has a key number, which also appears on the card. Simply circle the card number which corresponds to that following the item or advertisement which interests you. Then drop the card in the mail. No postage is needed. The additional data you want will be sent promptly.

Keep this "Cost Reduction Number" handy throughout the year as an aid to better buying.



"I need 6000 lbs. of structurals this afternoon--how about it?"

(A true story) It was 4:10 in the afternoon when the purchasing agent of a construction company called his desk man at Ryerson. "I need some structural channels in a hurry—12 inch, 25 pound . . . let's see, 12 pieces—that's 6000 lbs. Can I have it today? I'm really in a jam."

Ryerson's large stocks of ASTM-Spec A-7 structurals included just what was wanted. The steel was immediately cut and loaded, and at 4:35—just 25 minutes after the call—our truck rolled into the construction company's yard. They were then able to fabricate the channels in their own shop and have them in place by 11 P. M.

"I thought of Ryerson because I've always had good service from you," the customer commented later. "I know I was asking a lot, but you really came through for me!"

Whether it's your day-to-day requirements, or help in an emergency—count on Ryerson. Here are the world's largest steel stocks—unsurpassed facilities—and an organization eager and able to deliver. When you need steel—of whatever kind . . . call Ryerson.

RYERSON STEEL

Principal products in stock: bars, structurals, plates, sheets, tubing, alloy and stainless steel, re-bars, etc., also machinery and tools.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CHARLOTTE, N. C. • CINCINNATI • CLEVELAND DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

For More Information Circle No. 529 on Inquiry Card—Page 17



VALUE ANALYSIS

Purchasing's Part in Cost Reduction

WASTE is a word that makes good buyers shudder. Of all company departments, purchasing is the proudest of its ability to knock costs down without lowering quality.

Today the pressure of competition and the squeeze on profits are putting those purchasing aims and claims to a severe test. There's still plenty of wasted cost flourishing in industry and management is demanding that it be rooted out—which leaves cost-conscious purchasing on the spot.

In growing numbers, smart buyers are getting off the spot with a purchasing technique generally known as Value Analysis. Their steady and sometimes spectacular successes in cutting costs with value buying are putting them into the spotlight and establishing purchasing as a profit-making function.

What is this Value Analysis that is proving itself as a scientific tool for getting equal or better quality for less money? Is it for you, or is it limited only to those purchasing departments with huge budgets and lots of time to experiment?

Value Analysis is simply this: the detailed study of every aspect of every purchased part, material or service to see where and how unnecessary cost can be cut out of it. It's not a new concept, but a refinement of the basic principle you've been operating on for years: getting the right materials, of the right quality and quantity, at the right time, in the right place—at the right price. It's a way of thinking about buying that tries to shake you out of the complacent attitude that a convenient supplier with the best price will guarantee the smooth operation of the principle expressed in the homely words above. A certain amount of mystery built up about the term has scared a lot of people away from trying it. But it's still a basically simple technique that can be applied in all types of companies—large, medium or small.



See no value



Hear no value



Seek no value

Are These Attitudes Stalling *Your* Search for Value?

- It won't work
- Yes . . . But we're different
- It's the best design
- You can't take out any more cost
- We always made it that way
- We can't rely on anyone else
- Lower cost means lower quality
- Why change it? It works
- We tried that 20 years ago
- We know more about it than anyone
- Why should we stick our necks out?

What makes Value Analysis "different" from earlier buying methods is the wide scope of its activities, and the planned, methodical approach it makes to getting the best ultimate value for the money spent. It's bringing buying skill to its highest peak of efficiency—and it's something you can do right in your department whether you have one buyer or a hundred.

Value Analysis can be called a creative skepticism about every actual or proposed purchase—a questioning of every cost factor involved. In application, a program of analyzing values involves looking at these points: design of the product and the process it's made by; study of vendor facilities and capabilities; manufacturing cost estimates; possibilities for standardization; new supply sources; substitution of materials; new methods and new products; related costs (transportation, packaging, handling, warehousing, special vendor services.) From the long range point of view, you can consider these: charting of general economic trends; supply-demand studies and forecasts on principal commodities; developing information for use in make-or-buy decisions.

When you start to ask questions about points like these you can't help but cross into the territory of other departments—particularly engineering and production. In another day, you might have had some sharp clashes in such a situation. But you can judge the cooperative nature of value analysis and modern management's attitude toward purchasing by the way leading companies have not only tolerated this overlapping but encouraged it. For Value Analysis is basically a team effort that needs the constant cooperation and interplay of ideas and information among all segments of a company. Value Analysis is based on a unity of purpose throughout the organization—i.e., better product at lower cost.

But why put Value Analysis in the purchasing department if all other departments are equally interested in it? In those companies that have most successfully used Value Analysis, it has been made purchasing's responsibility because management knows:

1. Purchasing, by its nature is the most cost-conscious of all departments and therefore the most alert to challenge waste;

2. Purchasing is experienced in the types of cost analysis basic to good value analysis through long experience in negotiation and buying.

3. Purchasing is the company's window on the outside world—it has the widest contacts with vendors and the best knowledge of what they have and what they can do to help lower costs. It is really engineering's source for this important information;

4. Purchasing is in the strategic position of being a clearing-house for all requisitions, and for all deliveries of parts and materials. Knowing the over-all requirements of the company, it can take an objective view on cost reduction, and serve the company's interests with the least prejudice.

What Value Analysis Is Not

Before getting down to specifics in the setting up of a program, it's a good idea to make clear what value analysis is *not*.

Value analysis is not some kind of gadgetry, and it is not intended to replace buyers or buying skill. Neither is it an attempt to undermine or infringe on engineering contributions or prerogatives. It is not a simple, cut and dried mechanical system that can be installed overnight and thrown into full speed the next morning.

Value analysis is a long-range, well-planned attempt to get the best possible source for any given material or part. It seeks and uses information and assistance from other departments in the company. It is a cooperative effort that calls for the full understanding and enthusiastic backing of everyone involved in it. You won't get very far with Value Analysis until you prove to all concerned that it strengthens everybody in his own job. This has to be its aim and accomplishment—whether your Value Analysis program is carried on by individual buyers, by a special group in your department, or by a company-wide committee. How to go about getting this idea across is discussed in another section of this article.



Todays Purchasing Department Has a Specific Responsibility

Buying for Bigger Value

BECAUSE companies vary in size, type of operation and management policy, Value Analysis programs take different shapes and function in different ways, from company to company and industry to industry. Terms differ, too, but the basic object is the same. You probably won't be able to adapt any one complete program to your own situation, but its a fair bet that each has at least a small portion you can use profitably.

The bigger the company and the more elaborate its procurement system, the more likely you are to find that the approach to purchasing talked about here comes under the general head of Purchasing Research. In these companies, Value Analysis is often the major activity in the program.

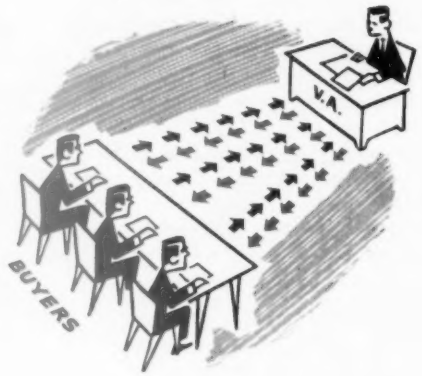
Since the great majority of industrial firms don't have, or don't need an elaborate research program in purchasing, we have chosen to use the term Value Analysis in a general way to take in all those systematic approaches to the problem of better value through better buying. This interpretation is backed up by the way in which a number of companies have successfully used this new technique by making specialized research part of an over-all Value Analysis program.

It's up to you, of course, to use the method best suited to your own needs—whether you want to call it research, analysis, cost reduction, or a combination of all three. Here's a thumbnail sketch of a number of firms are using specialized programs:

U. S. Steel, with a large purchasing organization spread all over the country, has special requirements for enormous tonnages of raw materials, and with problems of maintenance, repair, and operation dominant over those of manufacturing or fabrication, takes a broad approach to the question. It has a small staff department headed by a Manager of Purchasing Research. His duties encompass Planning and Program Development (systems, controls, inventory information, evaluation of performance); Commercial Research (vendor performance and capabilities, new products, general business trends, effect of market and production costs on prices, long range economic studies on major commodities); and Value Analysis (evaluation of purchased commodities including consideration of standardization, specifications, substitution, etc.; analysis of product design, packaging, transportation, manufacturing methods and materials handling; coordination of exchange of cost-reduction information among the corporation's various divisions).

The Manager of Purchasing Research is basically an administrative man, coordinating the value analysis efforts of both purchasing and operating depart-

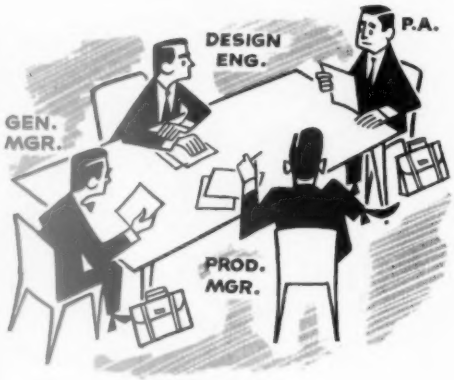
3 Ways to Organize Value Analysis



As A Staff Function

Both highly centralized purchasing departments and those operating on a line-and-staff basis are effectively using value analysis as a staff function. The size of the value analysis group can vary from one man up to a dozen or more, depending on the size of the company and its purchasing department. The individual staff value analyst serves generally in an advisory capacity and initiates specific projects only as they affect the entire organization. He advises and consults with buyers on particular problems, and usually is in charge of some program for training of buyers in value analysis techniques.

Groups or teams of value analysts on a staff are primarily operational, but are available at all times to give buyers technical advice. They are expected to be engaged constantly in cost-reduction efforts. They work closely with engineering and other departments on value analysis projects.



Through A Company Committee

A company-wide committee for cost reduction can mesh its activities with purchasing's value analysis program in a number of ways, depending on the size and problems of the firm. Purchasing's value group and the company committee may be separate entities that meet regularly to exchange ideas and coordinate efforts on cost reduction. Where there is no purchasing analysis staff group, the purchasing agent or one of his buyers may be the procurement representative on the committee. The committee may establish a number of "targets" and leave it to the individual departments to work alone or together to obtain the desired result at a certain time. Generally, training in value analysis techniques is left to the departments.



The Buyer As Value Analyst

Basic to any cost reduction program is the development of value analysis attitudes and techniques in the individual buyer. Training can take various forms, but responsibility for results lies with the chief purchasing officer. He must set up some systematic approach with definite procedures and goals. Then he can either permit the buyer to develop cost-reduction ideas on his own initiative, or set up specific projects for analysis. In the initial stages of training, the latter method will probably be better. Since there is no staff guidance, it is important to see that necessary coordination with other departments is carried on smoothly. Delegating this responsibility to one buyer of a group is often advisable.

ments. This does not, and has not, prevented his making a direct contribution to cost reduction based on his own observations and research. But fundamentally he serves to stimulate the individual buyer to creative cost reduction, assisting him with all types of pertinent information and advice.

At Caterpillar Tractor Company, where a wide variety of products and materials go into large manufactured products, and where engineering and design factors are extremely important, the value analysis function is put in the hands of a 7-man group headed by an Engineering and Cost Analysis Manager. This group is an integral part of the purchasing department. The position of value analysis

and its real significance to purchasing is summed up in the Manager's statement that "we are technical assistants to the buyers." There are 3 engineers, a cost accountant, a tool room man, and a business administration graduate in the group.

This group has the responsibility for studying every part and material that goes into Caterpillar tractors for possible cost reduction, without concession to quality. Its scope includes modification of material standards, substitutions, alternate processes, and analysis of the basic elements that make up the cost of a product (materials, labor, machine burden, overhead and profit).

The General Electric Value Analysis program, so well-known, and so successful, is something else again. It is tailored to meet the needs of a large, decentralized company, making a diversity of products, most of them involving a good deal of engineering skill. Under the administrative guidance of a central group, personnel in various divisions and departments are taught the techniques and information they need to eliminate large amounts of cost with no change in performance. This training is imparted through seminars at various divisions, where teams made up of engineering, production and purchasing people work on actual cost-reduction projects. They, in turn, become leaders of similar meetings in their own divisions. The formal composition and location of the value analysis group at any division is left to the discretion of the division manager or he may decide to have no group at all. Basis of the G.E. program is the famous 10 Tests for Value, which are shown elsewhere in this article.

Many of the divisions of Westinghouse Electric Corp. use the "committee of experts" approach to cost reduction. These groups, made up of buyers, cost men, engineers, manufacturing specialists, meet regularly and ask each other basic questions about design, function, manufacture, composition, and price of each material and component in the product made by that division. One Westinghouse purchasing official recently described these sessions as being like "mental ping-pong games" with 6 or 8 players. He reported that one session, on 14 parts of a product, generated 61 cost reduction ideas.

A large number of medium and smaller companies have one-or-two-man value analysis teams ("purchase research engineer" is one designation you hear often lately), or train their buyers to do their own analyzing in addition to their normal procurement duties.

Carrier Corporation, whose purchases run around $75 million a year, decentralized its buying set-up a couple of years ago. A single value analyst was made part of the central purchasing staff, with the task of giving staff advice and assistance to each of the three division purchasing departments. He was also given responsibility for contributing to the development of a program designed to train buyers in applying the principles of value analysis. In a general way, he is charged with helping to foster the "value analysis mentality" in the buying staffs.

In many other companies, both large and small, the approach is less formal. Buyers are directed toward value analysis either through self-training or regular meetings in groups of from two to a dozen individuals. Value analysis is a matter for the individual buyer in, for example, such differing companies as Sargent & Company ($6,000,000 annual purchases); Wyman-Gordon Co. (about $20,000,000 annual purchases) and Thompson Products, Inc. (approximately $150,000,000 annual purchases).

As Value Analysis becomes more and more established as a definite company activity, there are, of course, numerous variations of the arrangements listed above that could be successfully adopted. You have to adjust your value analysis organization to fit the particular needs of your company, based on its organizational structure, product line, geographical location of plants.

The basic idea of any program should be the development of value consciousness in the buyer. Once you can plant that seed, you're off to a good start on selling the program to the entire company. "One common denominator" in all value analysis, cost reduction, and similar programs, says the N.A.P.A. handbook on the subject, "is the buyer who is value-conscious and is backed up by knowledge and techniques that will enable him to cash in for his company on his value consciousness."



Cost reduction through value analysis can do much more than help maintain profit margins. When the jet age cut deeply into the propeller business of Hamilton Standard, division of United Aircraft Corporation, the company went into the highly competitive field of specialized equipment for turbine engined aircraft. This meant keeping costs at a minimum to win and keep customers. Purchasing has made an important contribution to this drive through analyzing values on all purchased parts. Here, assistant purchasing agent John Falkowski, right, discusses cost reduction possibilities of various jet fuel control parts with, l. to r., Edmond Morancey, sales manager of United Tool & Die Co., and John Gaffney and Les Bickel of Hamilton Standard's purchasing department.

Notes of a Value Analyst

(A hypothetical study of how a cost reduction project might get started)

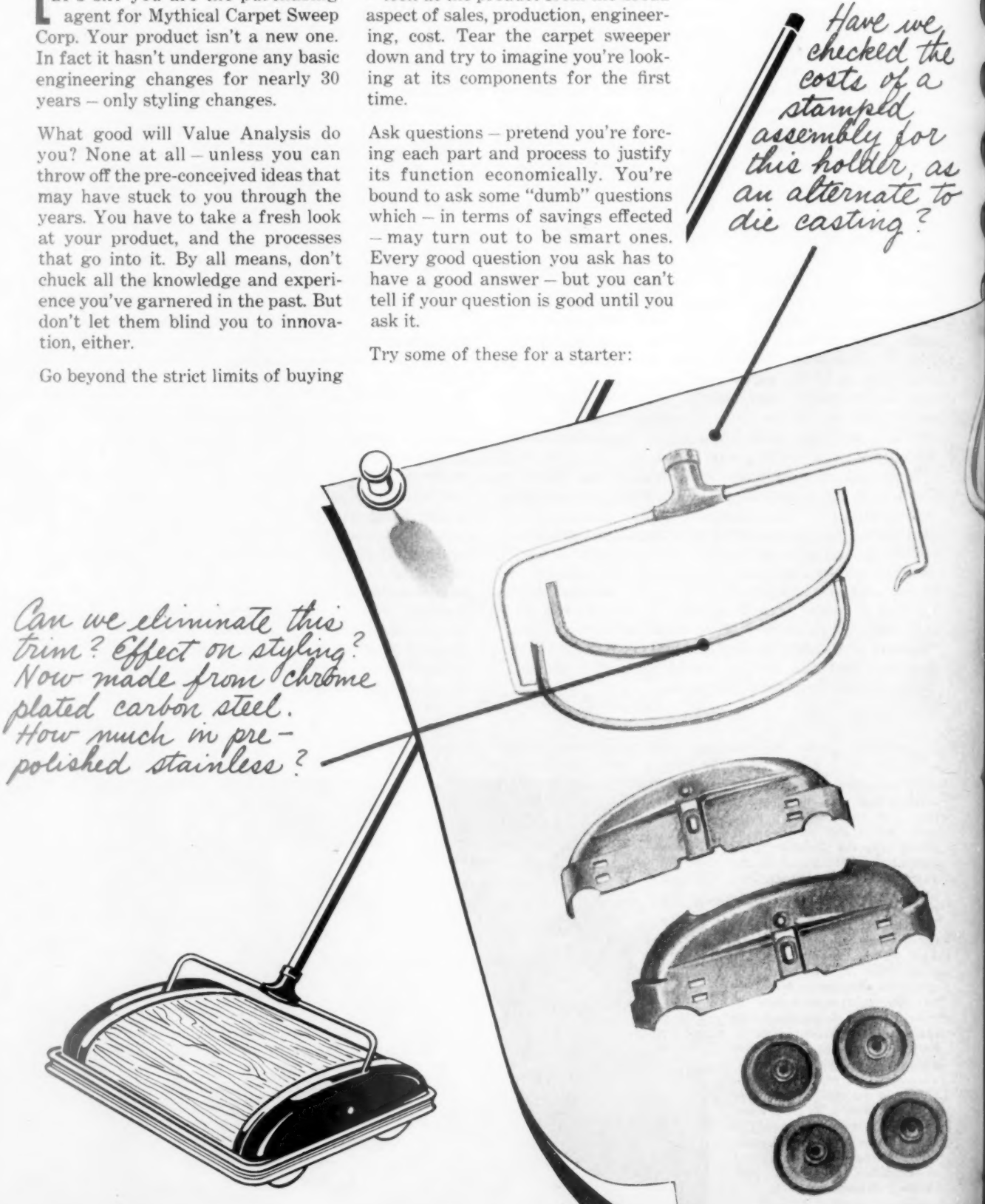
LET'S SAY you are the purchasing agent for Mythical Carpet Sweep Corp. Your product isn't a new one. In fact it hasn't undergone any basic engineering changes for nearly 30 years – only styling changes.

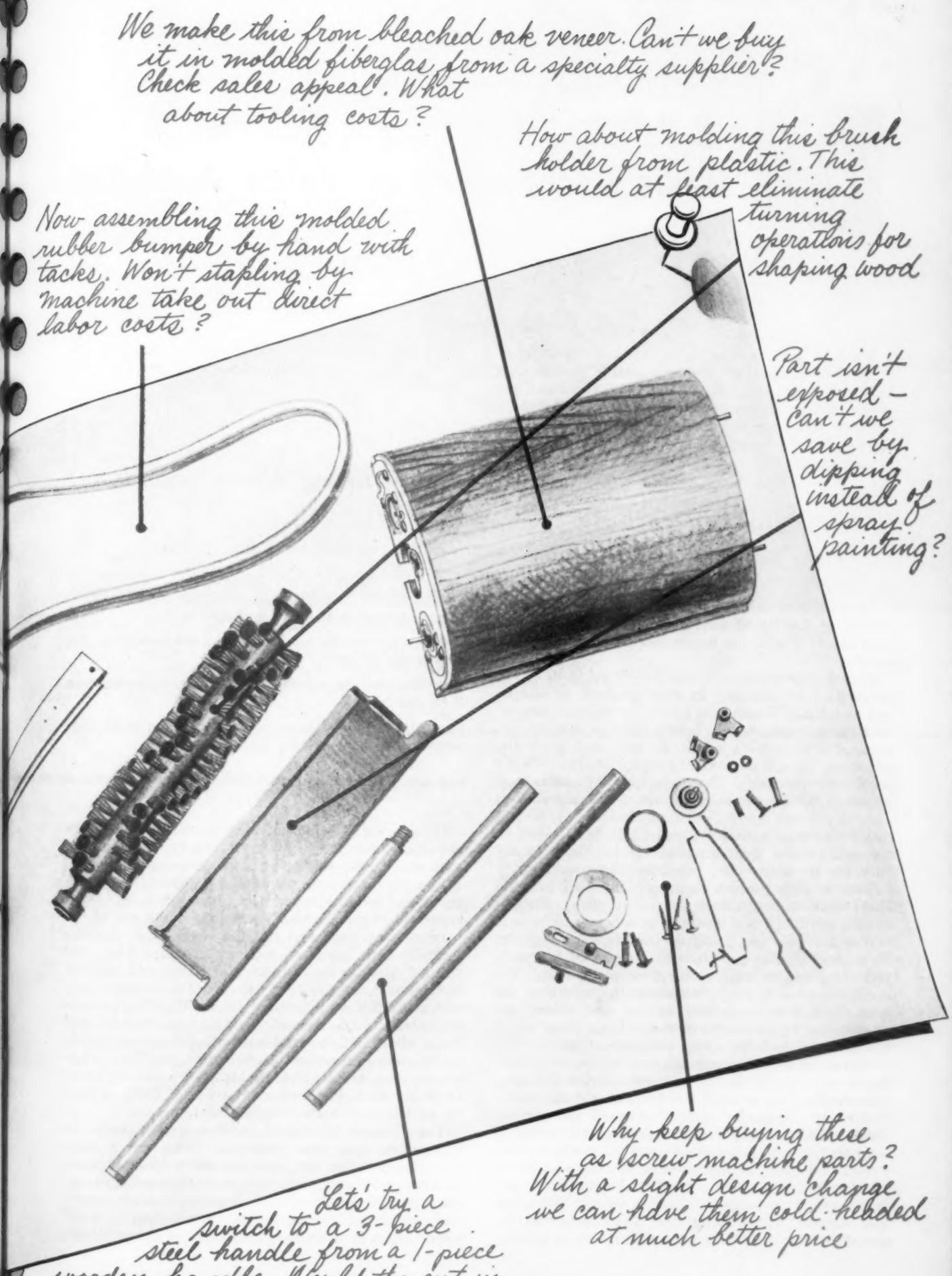
What good will Value Analysis do you? None at all – unless you can throw off the pre-conceived ideas that may have stuck to you through the years. You have to take a fresh look at your product, and the processes that go into it. By all means, don't chuck all the knowledge and experience you've garnered in the past. But don't let them blind you to innovation, either.

Go beyond the strict limits of buying – look at the product from the broad aspect of sales, production, engineering, cost. Tear the carpet sweeper down and try to imagine you're looking at its components for the first time.

Ask questions – pretend you're forcing each part and process to justify its function economically. You're bound to ask some "dumb" questions which – in terms of savings effected – may turn out to be smart ones. Every good question you ask has to have a good answer – but you can't tell if your question is good until you ask it.

Try some of these for a starter:




We make this from bleached oak veneer. Can't we buy it in molded fiberglas from a specialty supplier? Check sales appeal. What about tooling costs?
How about molding this brush holder from plastic. This would at least eliminate turning operations for shaping wood
Now assembling this molded rubber bumper by hand with tacks. Won't stapling by machine take out direct labor costs?
Part isn't exposed — can't we save by dipping instead of spray painting?
Why keep buying these as screw machine parts? With a slight design change we can have them cold-headed at much better price
Let's try a switch to a 3-piece steel handle from a 1-piece wooden handle. Would the cut in packaging and shipping costs justify?



Tested tools and methods to help you in prospecting for savings

Basic Techniques of Value Analysis

WHAT are some of these areas of "knowledge and technique" that will enable you to cash in for your company? Here's how you can use some of the approaches employed so successfully by value analysts in recent years that they have saved millions of dollars; and brought important new recognition to purchasing:

Study Your Individual Parts and Components

The real heart of a value analysis program is the review of individual parts, components and materials to see if you can lower cost without impairing quality.

First decide whether or not you're going to attack every part or assembly in your product, or one or two at a time. Unless you have a large, well-organized group ready to go, better stick to one or two parts at a time for a while. Be sure you know the exact cost on any part coming up for analysis. That's absolutely essential. Then classify the parts and materials by annual dollar volume. The big stuff is naturally worth more time than that on which you spend a total of say $100 a year. But don't overlook the small items. Sometimes pretty fair savings can be made on them—and pennies quickly add up to dollars. It might even be a good idea to start on the lower-cost items to feel your way along without risking too much if something goes wrong.

Whether you are going at one item or a group, it's a good idea to get physical samples of the parts you are going to analyze from the stock room. Put a label on each part—including the number, the price, how it is made, the vendor, and where applicable the rough weight of the material from which it was made, and the actual finished weight.

This tearing-down and tagging technique is primarily to help the buyer, and some of the information involved is necessarily for internal use only. But many companies have duplicated the process above, without using confidential data, and mounted the parts on a peg-board or some other display device. This display is then used in seeking advice and assistance from vendors (one firm has such a board in the reception room with a sign saying "What Do You Suggest?) in reducing cost. The boards and explanatory signs are also used effectively in driving home the value analysis concept to other departments. Once you have the parts to be analyzed, identified and at hand,

Ask yourself these questions:

What is the function of the part?

Is the function worth the price of the part?

How is the part made and what operations are performed on it?

Is each operation worth its probable cost?

Is the price we are paying for the whole part in line with probable cost?

Can the part be eliminated; can any operations on it be eliminated?

Can alternate processes or materials be used economically without hurting performance?

If the answers to any of these questions are different from those you've always taken for granted, you may be on your way to an important cost reduction.

Be sure that your questioning is thorough—covering every possible cost aspect of the part. And don't be afraid to ask "foolish" questions—nine out of ten may get you nowhere, but the tenth might hit the jackpot. One buyer of a screw machine part was "dumb" enough to suggest that it be cold-headed. He was told, not too subtly that he was being a little foolish in talking about the impossible. But he sent an inquiry to a specialist-supplier of cold-formed parts who had developed a new technique applicable to the item in question. As it turned out, the change was not impossible, and the company ended up with an 86% cost reduction and a saving of $8,800 a year by switching to a cold-formed part.

The changes illustrated in the case histories in this article and throughout this issue are a mere sampling of what can be done today by analytical, creative purchasing. It's not an exaggeration to say that most of them had their beginnings when somebody—purchasing, engineering, production, or vendors—began to question the old way of doing things.



Don't just sit back and wait for your vendors to come up with cost-saving ideas. Let them know exactly what you're making and where they might help you save. Above all, arouse their interest and enthusiasm. This complete display of parts of a turbo hydraulic pump, along with the challenging question "What Are YOUR Suggestions?", hangs in the lobby of General Electric's Aircraft Accessories Division.

Look for New Processes

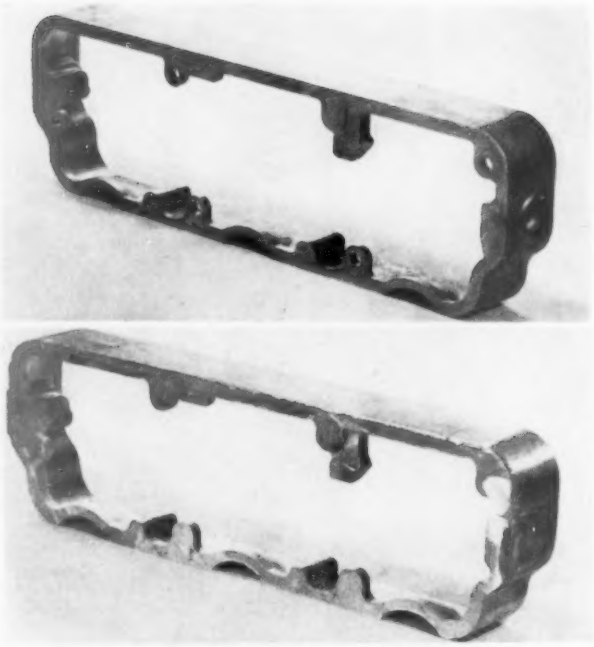
It's easy to say "be alert to new developments and their application to your product." Doing it is a lot harder. Theoretically, the salesman for the development should be doing this—but the hard fact is that many of them don't. Either they don't know whom to see, or simply aren't imaginative enough to see the potential for their products.

By helping the salesman do his job you can help yourself. Tell them your problems, stimulate them to explore the possible uses of their products, their machines, their facilities. General Electric does an excellent—and rewarding—job of this kind by inviting suppliers of specialty products such as powdered metal parts, electronic assemblies, advanced machine tools, and others, to Value Analysis seminars at the various company divisions.

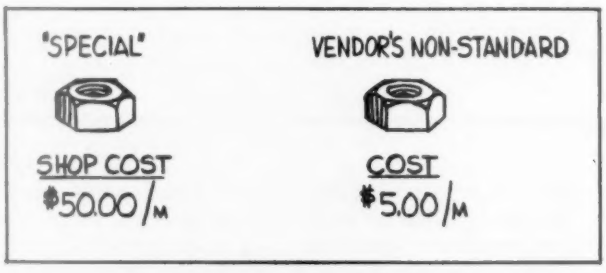
Sales engineers from these vendors have the chance to talk to assembled buyers, designers, and engineers on the cost-saving virtues of their products. Then they are encouraged to move among the value analysis teams working on specific projects, making suggestions and providing prompt advice. Facilities are available if they wish to get in touch immediately with their home offices for the solution to some problem that they don't have the answer for at the moment.

Don't forget that suppliers have engineering departments, too. Indirectly, you are paying for their upkeep, so you might as well make use of their talents. Most of them are willing and anxious to consider your problems, and many have staffs for the very purpose of offering you their own brand of "customer value analysis." A number of case histories in this issue involve cost-saving suggestions in design change by vendors following the receipt of orders for parts that were over-specified. Don't let pride stand in your way—seek out this kind of help, and it will benefit you and your company. "We're not seeking the glory for a cost-saving" one vendor highly successful in this type of assistance said. "Anyone in the company can have it if he wants it—all we want to prove is that we can help the customer and that we deserve to hold his business."

Back-door selling can cause you a lot of headaches—but a minor variation of it, properly controlled, can be a useful weapon in your value analysis campaign, since keeping your engineers isolated from all contact with developments on the outside only retards it. Try to work out some system of channeling salesmen to the proper operating per-



CHANGE IN PROCESS — Caterpillar Tractor Co. changed a cylinder head cover base from an aluminum sand casting (bottom) to an aluminum die casting (top). Machining operations on the sand casting are unnecessary. Annual saving: $67,553.



BUYING FROM SPECIALTY SUPPLIER—A New York Company was making this "special" odd-size ¼-20 nut in the shop at $50 a thousand. By seeking out a specialty supplier who listed the non-standard item, cost was brought down to $5 per thousand.



NEW TECHNIQUE, NO MACHINING — This starter pinion latch was obtained by buying the rolled section (top) from a steel mill and machining in the Caterpillar plant. Now it is bought as a finished part which is made by laminating five stampings, pressing together, and brazing. Annual saving: over $26,000.

sonnel when you realize they have an idea which might pay off but which needs a little more technical investigation. If this is not practicable, make sure that the idea gets to the right man as soon as possible, and that he gets all the necessary details. More than one great cost-saving idea has dried up and blown away in some value-un-conscious buyer's "hold" basket.

If you know your business and are doing the kind of intelligent purchasing that is admired and respected, vendors' contacts with operating personnel won't hurt you, because you'll be called in on the final decision anyway.

Close attention to the editorial and advertising content of trade and business publications is a must for the value analyst. The demand from leading value analysis groups for the case-history type of material presented annually in issues like this one is evidence that publicity about new processes offers a rich vein of information and inspiration.

Are You Making Full Use of Suppliers?

This same type of curiosity is helpful in visiting suppliers' plants or analyzing their facilities.

An imaginative buyer for a large manufacturing firm kept his eyes and his mind open on a trip through one of his vendor's plants. A component of one of the assemblies he bought was machined on a six-station Cone automatic. Discussing the operations on his part, the buyer found from the supplier (a leader in the metalworking field) that the rather expensive Conomatic was standing idle a good part of the time.

Since the supplier was not directly in the screw machine parts business, he was not able to find work enough to keep the machine busy. (Actually, the situation reflected a poor make-or-buy decision on the supplier's part—he should have been buying screw machine parts from a specialty supplier rather than tying up capital in equipment that wasn't being used to full efficiency.)

But his folly was the buyer's gain. He convinced the supplier that it would be advantageous to find additional work for the machine so as to spread its cost out over greater production. He also persuaded the vendor that it would be worthwhile to get such additional production, even if it had to be sold at lower-than-average prices. Thus, the buyer wound up finding himself a new low-cost source for a part he had never thought of buying from that source of supply. That's the difference between the value-

conscious buyer and the run-of-the-mill buyer who probably would say, "Why bother? It's no skin off our nose."

Looking around your own shop can give you a lot of ideas. A specialist maker of relatively complicated components for the auto industry was machining castings for one model on a new, ultra-modern transfer machine at very low cost. The comparable part for another model was purchased machined from an outside supplier. The volume of the latter part was only 10% of that of the former part, so it was machined on single purpose equipment. Naturally, costs were much higher.

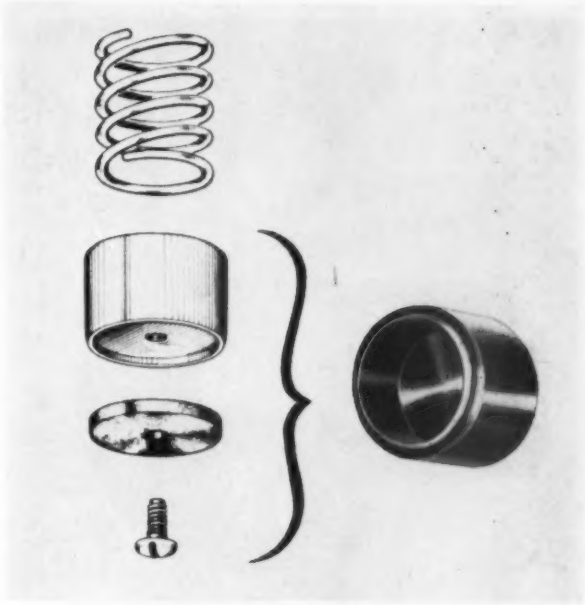
Here's why it pays to assume nothing in value analysis. The more expensive part—the casting machined by the outsider—was actually lighter than the one machined in the shop. Originally, the outside casting was of slightly less expensive design and was lighter, since the additional weight was not needed. And it *was* less expensive—until the high volume part began to be machined on the transfer machine.

The value-conscious buyer, definitely not of the "why change?" school, realized that automation had changed the relative pride position of the two similar items. He knew his figures, and he was willing to stick his neck out. Why not, he asked, beef up the low-volume casting—yes, and make it more expensive at first—and then run it over the same transfer machine used on the high-volume item. After minor modifications in design, the low volume casting was switched to the transfer machine and the benefits of automation obtained. Result: The rough casting cost 12% *more* but the net cost of the finished part is now 19% *less*.

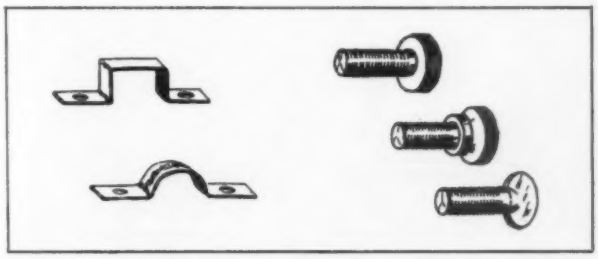
The less respect you have for age—when it comes to design—the better your chances for getting real value. A part designed many years ago might have been nearly perfect at that time; but time and progress may make it a very poor value indeed today.

A classic example is that of a special nut used by an electrical parts manufacturer. At the time it was released, the buyer asked the engineer if there were any possibility of redesigning it so that it could be made on a cold header. As released, it would have to be made as a screw machine part for about 4¢; cold headed it would have cost no more than ½¢. The engineer was willing to cooperate, but it was impossible to redesign to permit cold heading. In other words, *at that time* it was *impossible* to make the part more cheaply any way than on a screw machine.

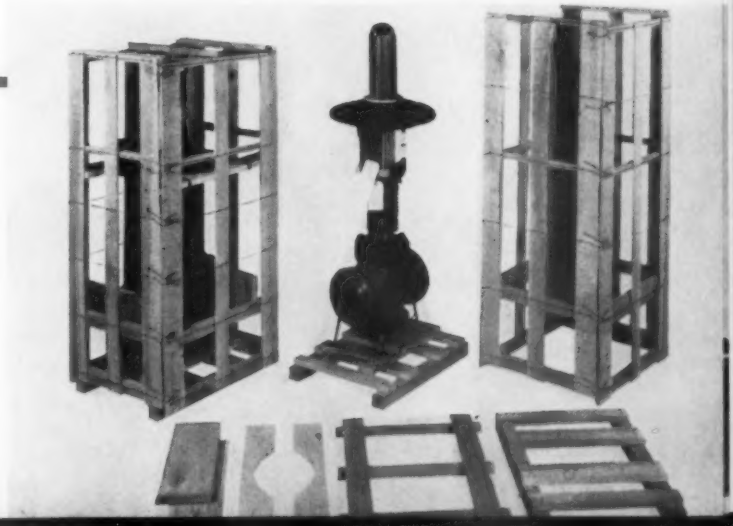
But times change and new methods are developed and engineered into new parts and products But



CHANGE IN DESIGN AND MATERIAL—Lerio Corp. replaced a three-piece discharge valve body for the piston head of a pump with a single unit synthetic rubber discharge valve body, made by International Packings Corporation. Cost of three parts plus machining and assembly was $.1114 per unit. The single unit costs $.0696, gives quieter operation and faster installation, is not affected by sand or small particles.



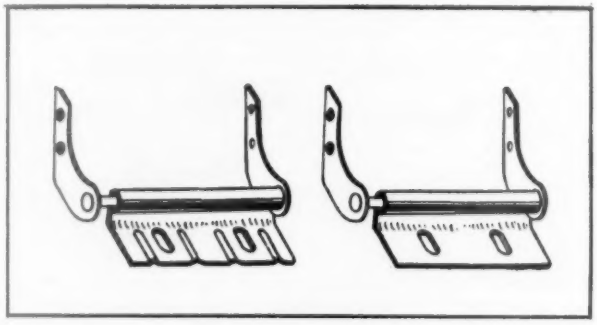
SWITCH TO STANDARD PART—A switch from the special clamp at top (50¢ each) to the standard at bottom (3¢ each) brought a manufacturer a 47¢ saving on each unit. Similarly, the company quit buying the 15¢ set screw at top, when a search turned up the standard in center at 3¢, and the standard at bottom at 1-1/3¢.



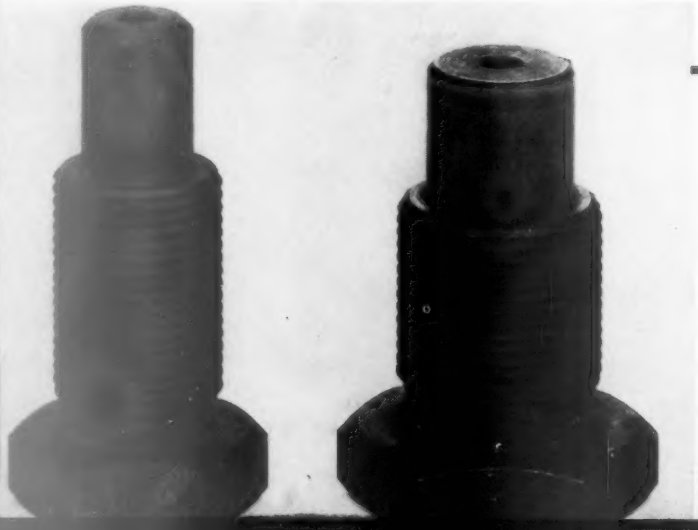
CHANGE IN PACKAGING—The Foxboro Company saved $7500 a year in packing material and transportation charges by steel strapping valve bodies to a skid, bolting skid to pre-drilled base of wirebound crate, fastening packing pieces and wrapping wirebound mat in place. Solid crates were used formerly. Shipping weight is reduced 48 lbs., storage and handling are greatly simplified.



CHANGE IN PACKAGE DESIGN—This expendable corrugated fibre reel replaces wood, metal or plastic reels. Bentley-Harris Mfg. Co. finds that its initial cost is less than that of other reels, it can be imprinted with advertising, and can be stored in knocked down form.



VENDOR SUGGESTION, CHANGE IN METHOD—When a vendor saw this hinge being bought as a stamping (left) at an appliance maker's plant at 37¢ each, he suggested roll forming. The roll formed hinge at right costs 27¢. Saving: $200 a day.



DIFFERENT MATERIAL, LOWER PRICE—A supplier suggested that these parts be made of leaded steel. The purchasing department of a machinery manufacturer got engineering's OK. The improved machinability enabled the vendor to offer a lower price, and the company saved $8,100 a year.

old parts and old design decisions are, unfortunately, rarely reevaluated in the light of new developments. It took a shortage of bar stock to spark the analytical urge in this buyer's brain. He had been reading up on molded nylon just to stay informed and asked himself why that couldn't be tried. He got in touch with a specialty supplier of such parts and got a quotation of $0.008 per piece—a tremendous saving over the screw machine process. The nylon proved out, was accepted—and the company realized a big saving.

Analyze Your Material Costs

Regardless of what your product is made of, there's more to analyzing your material costs than knowing the price per pound. To save money through value analysis of material costs really involves doing either or both of these things—using less material or substituting a lower cost material. The value approach works just as well on materials used by vendors in fabricating parts for you as it does on raw materials purchased for fabrication in your own factory.

Don't think opportunities for reducing consumption of material are limited. The only limits are those of your own initiative and imagination. The only time you can't cut material usage is when there is absolutely no scrap generated in fabrication. Suppose you make something from sheet metal—steel or non-ferrous. Check the offal—are any pieces big enough to make smaller parts from them?

Perhaps you are buying small parts from an outside supplier. If he can use your offal in that operation, you should do the cheaper of two things; either sell him the offal and negotiate a reduction in the cost of the parts you buy from him, or make the part in your own factory if you are equipped to do so.

Just because a given amount of material has been used in a product for 15 or 20 years doesn't mean the weight can't be cut. Here's a good example of analyzing material costs—and if you look hard enough you probably can find a chance to do something like it in your own organization.

A well-known automobile company used about 10 tons of 14-gauge hot rolled steel strip for certain parts of its truck bodies. This type of steel had been used for the parts for many years—in other words it was "a time-tested application."

A buyer whose analytical mind wasn't awed by the status quo, investigated a competitor's product to see what type steel was being used for the same

application. The competitor was using 18-gauge cold rolled, and had been using it for a number of years.

Since hot rolled steel was not available in gauges lighter than 16 (and cold rolled wasn't necessary for the application and would cost more anyway), the buyer had the supplier make up samples in 16-gauge. Engineering cautiously spent six months testing the lighter weight material. It worked. Result: a saving of $1,200 monthly.

(Incidentally, if you are the buyer for the competing auto maker, you should note that the heavier 16-gauge material hot rolled is normally cheaper than 18-gauge cold rolled. In this one case, you can save money by adding material!)

Savings from using cheaper material are, of course, more obvious. You can get them either by substituting an entirely different material or by analyzing the price structure of the material you are using. It's here that purchasing usually makes the greatest contribution—other departments are generally just not close enough to changing markets to keep abreast. In this case, it's your job to keep engineering up-to-date on the relative costs of various materials. This will help them design the right material into the job at the start, when the only real reason for favoring one material over another is cost.

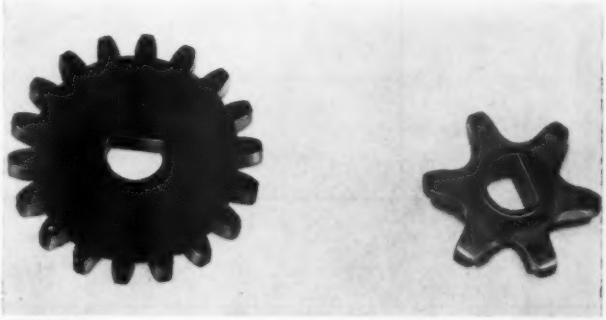
Be careful that the engineer is not making his choice of materials on impressions of relative costs he got from you a year ago. You have to stay up on changes, and you've got to keep him informed. Several purchasing departments buying numerous types of material subject to price changes and to competition from substitutions issue a regular "poop sheet", weekly or monthly, containing price and lead time information on those commodities. These are widely distributed throughout interested departments.

Another technique that helps your own value analysis and at the same time helps engineering in its work and its relationships with you is a definite understanding on the acceptability of substitutes. Since the possibilities of cost reduction aren't exhausted until you have considered *every* alternative, why not try to get engineering to release parts with every acceptable substitute material listed? Then you can go ahead into the most desirable combination cost-wise without further complications.

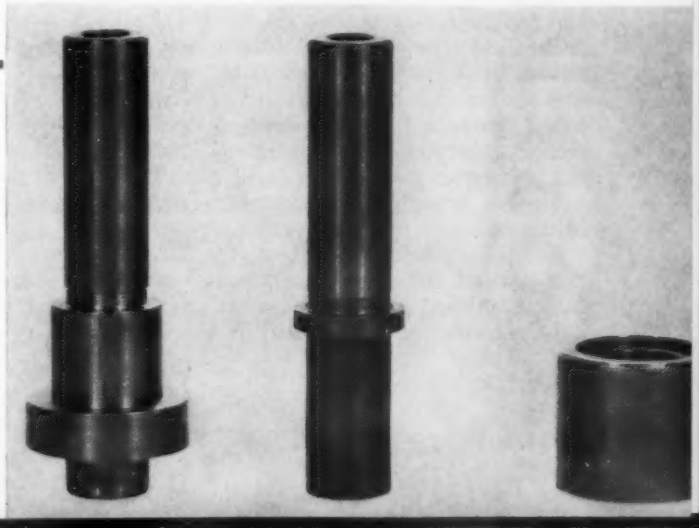
One company that followed this policy, had one part released as a gray iron casting, zinc die casting and an aluminum die casting. So far, the part has been made all three ways. Although the buyer's choice of material through the years has been influenced by the availability as well as price, this



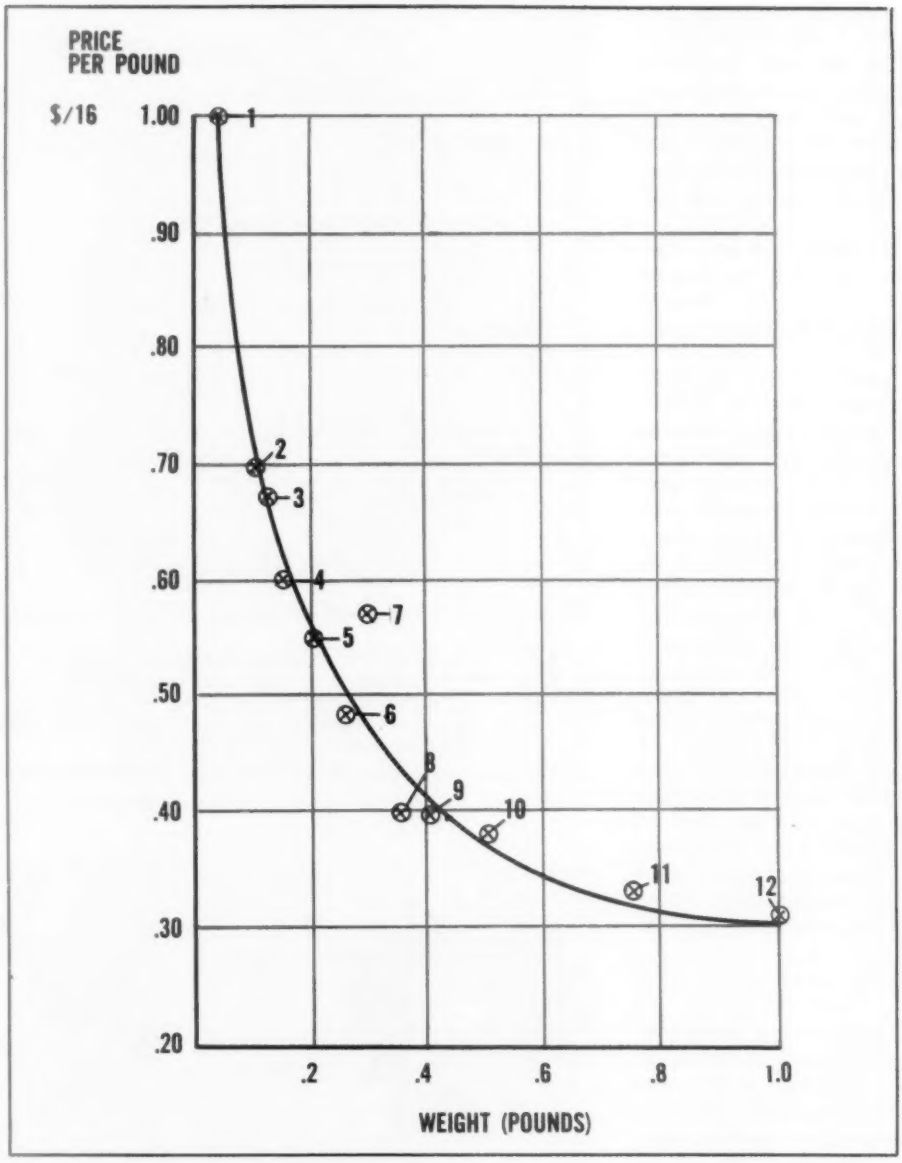
SAVING WITH MORE EXPENSIVE MATERIAL—By switching from lower cost steel to higher cost phosphor bronze for a spring, a manufacturer actually saved $3000 on every thousand units. Cost comparisons are shown in the sketch.



USE OF NEW IDEAS—These parts, of difficult shape and close tolerances, bought by a vending machine manufacturer, were designed for production by powder metallurgy. If made by any other method, the cost would be at least twice and possibly three times what the company now pays.



CHANGE IN DESIGN—Caterpillar Tractor Company now uses a valve stem bushing made as a one-piece casting (left) instead of as a two-piece assembly made from bar stock and casting (center and right). Saving: $22,000 a year.



Plotting the price-weight relationship of comparable purchased parts on a simple chart like the one above gives you a handy tool for estimating the value of new parts of the same type. Parts falling outside the geometric curve should be closely questioned to find out why the price doesn't fall into the general pattern. You'll find complete instructions for using this technique on page 55 and following.

flexibility has enabled him to reduce costs for the component by some $66,000 over the past five years.

Most metals have pricing structures that involve both base price and extras. With only a little effort you can find ways to eliminate or reduce these extras and realize a nice saving. Here, for example, is what Allis-Chalmers did to whittle away at its multi-million dollar annual steel bill:

A special bar shape with a two-degree bevel was being purchased in cold finished steel at $9.20 cwt. By changing the spec to a special hot rolled shape, the price was reduced to $7.10 cwt. This saving of $42 a ton brought about a cost reduction of $12,180 in one year.

At A-C's Springfield plant, the attack on extras was carried out on a broad frontal basis. By eliminating increments of a fraction of an inch on 46 different sizes of steel plates, it was possible to reduce the number of sizes to 29. As a result, inventories were reduced, size extras were saved in many cases, and quantity extras per item and per order were drastically cut. Savings are expected to hit $40,000 annually.

Standardize and You'll Save

Standardization is definitely one of Value Analysis' most useful tools. Even large corporations with established standards departments and long histories of careful attention to standardization as a cost reduction weapon are still making big savings by taking a second look at the commonplace.

Here's a case in point. At one of Westinghouse Electric's larger plants, a welding machine was be-

ing made with a gear shaft knob and lever as one of its components. A new control device, made in another department, required a similar component. Since the two units were made in different departments and designed by different engineers, nobody thought to question why the knobs and levers had to be different. Nobody, but purchasing, that is. Purchasing was in a unique position to see the opportunities for standardizing as it reviewed requisitions for these particular parts.

Purchasing acted as a catalyst in unifying the design. Design of the parts was standardized. Now Westinghouse can buy in lots of 1000 rather than lots of 500, and achieve a nice saving from the greater volume.

Examples like this can be multiplied by the hundreds—if not thousands—in small companies as well as large. One small company with only 600 employees has saved substantially through the creation of a standards committee that includes representatives of all departments, including purchasing. As in many other companies, this group considers savings through standardization not only of requirements within their own company, but by conforming to established technical and industry standards.

The dramatic savings made on standardization of production materials shouldn't blind you to the opportunity for saving through standardization on operating supplies—one area where individual preferences and prejudices are stronger than in those materials involving engineering considerations. Take a look at your requirements for lubricants, packings, cleaning compounds, floor treatments, mimeograph paper and supplies, small tools, welding and lighting equipment and supplies, safety clothing, disinfectants, chain, etc.

Have you figured what specials are costing you? Have you figured what it would mean in dollar savings by switching to suppliers' shelf items whenever possible? You may have been going along for years buying an item that means extra manufacturing expense for your vendor and higher prices to you. Look at these figures on the estimated additional costs involved in making specials (based on a survey of industrial product manufacturers quoted by Stuart F. Heinritz)*:

23.5% estimate that special items cost from 10 to 15% more to produce than comparable standard items; 47.1% say the additional cost runs from 25 to 50%; and 17.6% figure the extra costs run even more than 50%. Only 11.8% estimate that no substantial extra cost is involved.

Some of the better known and more dramatic case histories of savings through using a supplier's standard are in the field of fasteners—but the opportunities run the whole gamut of industrial products. Geo. D. Roper Co., for example, was buying specially designed fluorescent tubes and ballasts for its kitchen ranges according to strict specifications. Thus, the components had to be made to special order by the supplier.

Purchasing investigated and found that standard components could be used with only minor modifications to the ranges. The changes were accepted by engineering and the standards adopted. One year's saving on the two items amounted to better than $148,000.

Analyze Everything for Value

Cost reductions in productive material often make a big splash but there's a lot to be saved in the relatively quiet pools of MRO supplies, transportation, and packaging.

Try to follow the ITABWODI ("Is There A Better Way of Doing It"—the cost-reduction slogan at Caterpillar Tractor Co.) principle in respect to MRO supplies as soon as you see the requisition. Analyze, think, challenge, investigate. Is the product requisitioned really necessary for the operation of your business? Can something better do the job? If there is any question in your mind about the answers to these questions you should definitely discuss them with the requisitioner.

All this sounds very elementary. But one veteran buyer who followed the principle of assuming nothing and questioning everything that was not perfectly clear managed to get at least one requisition per month killed. Requirements would change after the request was made, and the requisitioner didn't bother to cancel the requisition; material would be available at another location unknown to the requisitioner; and there were often substitute materials on hand that would serve the purpose just as well.

You'll often find, if you look far enough, that some requisitioners have a tendency to request six of an item when three or four will last them almost indefinitely. They sort of "round off" their needs to the nearest dozen or half-dozen. Depending on the discount structure of the product, a couple of extra pieces might cost you virtually nothing. But it's more likely that the discount structure of the commodity has no relation to the whims of the requisitioner. A careful check of requisitions will reveal the conscious or unconscious pack ants in your company.

An educational campaign to show operating people the costs of carrying inventory for 5 or 10 years as against re-ordering at some future date might well fit into a value analysis program.

Conversely, you could carry on a campaign against frequent small orders. Particularly when the requisitioner controls his own inventory, you have o be certain that when requisitions are repeated, the quantities are the most economical you can order—considering both your supplier's price and discount structure and the cost of carrying inventory.

"Whenever requisitions come in too frequently, it is a signal to purchasing to look for something better" says Joseph A. Teece, Vice President and Director of Purchases of Fansteel Metallurgical Corporation. He revealed another opportunity for cost reduction by analyzing frequency of requisitions—replacement costs on a certain item might be so high that it's time for a change. By switching to a new type filter from one that had to be requisitioned every three months, Fansteel was able to save close to $27,000 in one year.

The cost of carrying inventory in your plant should be an area for profitable analysis. A thorough knowledge of what it costs the company to carry

*Heinritz, Purchasing—Principles and Applications, Prentice-Hall, Second Edition, New York, 1951

How Do You Measure Up?



Below are the qualifications for a value analyst presented at a one day conference on the subject at the University of Wisconsin. They were stated by Galen B. Price, Manager, Purchasing Research, and A. E. Conn, General Purchasing Agent of the Ford Motor Company. Check your own qualifications and those of your buyers against this list.

His technical qualifications are:

- Well versed in what the company purchases
- Well versed in company's manufacturing methods
- Knowledge of reasonable work standards
- Knowledge of commodity markets
- Knowledge of techniques of cost accounting
- Ability to evaluate suppliers in financial terms
- Knowledge of company suppliers, present and potential
- Knowledge of industry practices in the industry in which the company buys
- Knowledge of supplier facilities
- Ability to keep himself up-to-date, and keep abreast of new materials, machines, methods; changes in material prices, in labor rates, and in competitive conditions; and finally in all major factors potentially affecting the present or future price

stocks, plus complete familiarity with the price advantages to be gained through buying particular amounts of a commodity at a given time are all the equipment you need to take advantage of the cost-saving opportunity presented by strict inventory control.

A number of sound techniques for determining when the cost of carrying inventory is in equilibrium with price advantage (thus marking the point at which the buy should be made) are now at work for industrial purchasing departments. Space does not permit full presentation of the relatively simple formulas involved, but if you feel that this cost-saving area bears further investigation in your plant, just write for PURCHASING reprints "Profits Through Inventory Control" and "Quantity Discount Buying". The information they provide may give you the key you need to tap this profitable source.

Save on Packaging and Shipping

Packaging and freight is costing you a lot—perhaps much more than you think. Some studies have shown that packaging's portion of a price sometimes runs to 15%.

What can the value analyst do about packaging? First he can determine its exact cost—then see what he can do to change the package so that the cost comes down. This often involves, paradoxically, buying a more expensive package—and sometimes doing away with the package altogether. Using a different and higher priced crate enabled Geo. D. Roper Company to remove operators from the assembly line. Even though the new crate cost more, the reduction in labor expense enable the company to save $2,000 in a year. Sargent & Co. switched from buying cutting oil in drums at $.3033 per gallon to buying it in bulk at $.2225 per gallon. And the cost of the storage tank installed to handle the bulk shipments was amortized in the piece price. Though in this case the "package" wasn't completely eliminated, it came pretty close, since the one tank will be used for many years.

The dozens of case histories in the packaging and shipping section of this issue should stimulate the value analyst to some thinking about ways of cutting costs.

A close study of freight and shipping customs and costs in your company—preferably in conjunction with your traffic department—can help you trim off wasted dollars. Are you using high-cost carriers to bring in low-cost, low-moving materials and commodities? Do you know how to specify method of delivery so as to take full advantage of classifications set down by the Interstate Commerce Commission? True, large users of raw materials probably can do



General Electric's famous "Tests for Value" have been standard in the field of Value Analysis for several years.

the best job of saving in this respect, but almost anyone that has materials or products shipped to him has a chance to cut costs with careful study of rates, methods of loading, geographical locations of suppliers of the same item.

Allis-Chalmers has been saving about $2000 a month by cutting down on the number of inbound shipments received each week in less than carload quantities, at premium transportation costs. The company has set up a consolidated receiving station in Chicago, where these small shipments are combined, shipped to Milwaukee and distributed to the plants at full truckload rates.

Analyze Prices of Comparable Parts

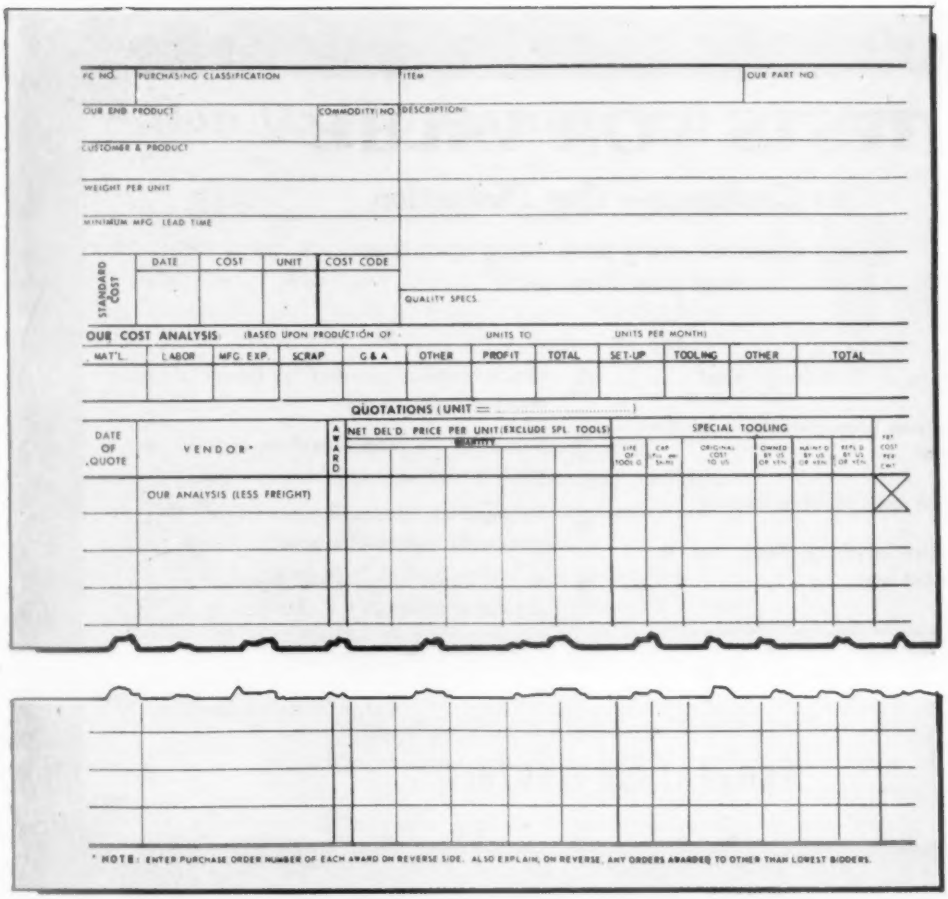
Curiosity about differences in the cost of similar parts you use often leads to some interesting results. If there's a wide price differential in two parts which should be rather close in price, look for the difference in terms of actual manufacturing cost. If it can't be justified, you may be on your way to a substantial saving.

A simple technique for comparing costs of similar products without even handling the parts physically is based on the fact that as the weight of a given type of part increases, the cost per pound decreases. This is true even though the total cost of the part naturally increases as the part gets heavier.

To apply the technique—which can be handled by a clerk after a minimum of instruction—select a series of comparable parts for analysis. It can consist of parts made of almost any material or by any process. But all parts in the series must be made of the same material with the same general manufacturing process. Also, quantities should be reasonably similar—since a part with a usage of 10 pieces monthly simply cannot be compared with one bought in lots of 10,000. You can apply the method to plated and unplated die castings, forgings, molded rubber parts, sand castings, molded plastic parts, cold headed products, etc.

All you need know are the weights and prices of the parts selected for analysis. List the part, its price, then divide the price of each part by its weight and you have its price per pound. Starting with the lightest part, plot the price-weight relationship of each part on a piece of ordinary graph paper, as shown in the chart on page 52. You should wind up with a curve like the one in the example, providing you do not have too many exceptions like part No. 7, which is outside the curve.

If *every* part plotted on your curve falls neatly into the pattern, you have been wasting your time



PC NO. | PURCHASING CLASSIFICATION | ITEM | OUR PART NO.

OUR END PRODUCT | COMMODITY NO. | DESCRIPTION

CUSTOMER & PRODUCT

WEIGHT PER UNIT

MINIMUM MFG. LEAD TIME

STANDARD COST: DATE | COST | UNIT | COST CODE

QUALITY SPECS.

OUR COST ANALYSIS: (BASED UPON PRODUCTION OF ____ UNITS TO ____ UNITS PER MONTH)

MAT'L.	LABOR	MFG. EXP.	SCRAP	G & A	OTHER	PROFIT	TOTAL	SET-UP	TOOLING	OTHER	TOTAL

QUOTATIONS (UNIT = ____)

DATE OF QUOTE	VENDOR*	AWARD	NET DEL'D. PRICE PER UNIT (EXCLUDE SPL. TOOLS) QUANTITY					SPECIAL TOOLING: LIFE OF TOOLS	CAP. (No. of Units)	ORIGINAL COST TO US	OWNED BY US OR VEN.	MAINT'D BY US OR VEN.	REPL'D BY US OR VEN.	TOT. COST PER CAV.
	OUR ANALYSIS (LESS FREIGHT)													

* NOTE: ENTER PURCHASE ORDER NUMBER OF EACH AWARD ON REVERSE SIDE. ALSO EXPLAIN, ON REVERSE, ANY ORDERS AWARDED TO OTHER THAN LOWEST BIDDERS.

Asking for suppliers' cost breakdowns has disadvantages that may cause you trouble. The policy will not cement supplier relations in most cases, and may lead to endless disputes over accounting practice. Yet some companies with special situations (particularly where the Government is involved) are demanding complete cost analyses by their vendors. This form, used in the aircraft industry, is a re-cap of information received on requests for quotation. It is kept at the buyer's desk and gives him an up-to-date record of price by part number, and a comparison between the company's cost estimate and supplier's price breakdown. When complete information is assembled on the form, the buyer should be able to make an immediate decision on whether to "make or buy."

—as far as cost reduction on *current* items is concerned. But don't throw that graph into the wastebasket. You can always use it later to estimate the value of new parts.

Suppose for example, you receive prints and a requisition to buy a part similar to those plotted on the graph. The new part weighs 0.6. By locating on the graph the point where 0.6 pounds intersects the curve, you learn that this part should cost about $.34 per pound. Multiply 0.6 by .34 and you learn that the unit price should be about $.204.

It's far more likely that you have a number of parts, which like No. 7 in the example, don't fall into the general pattern. Why is No. 7 out of line—costing about $.57 per pound when theoretically it should fall between parts 6 and 8 on the curve and cost about $.47 per pound?

That's where your investigation begins. It may be that the vendor is simply charging you too much. That calls for negotiation or quotes from competitors. But if the part is something like a molded plastic item or a die casting, check your tooling. Is it being made with a single cavity mold while parts 6 and 8 have the advantages of multiple cavity molds? If this is the case, would a two or four cavity mold for part 7 be an economical investment? Is Part No. 7 overdesigned? Should it be made by the present process or would another method lower costs?

If the parts you check are forgings, there are other avenues of investigation. Can the forging be more economically made on a press instead of a drop hammer—or vice versa? Does the design permit maximum die life and minimum number of hits with the hammer? Does it make a second heat necessary? Perhaps engineering can make design changes to reduce the effect of these major cost facts—maybe the part can be made in two pieces.

Regardless of the nature of the particular parts, plotting their cost-weight relationship can only highlight individual parts that show a potential for cost reduction. The actual achievement of lower prices still depends, of course, on the skill, perseverance and imagination of the buyer.

In the past few years you've undoubtedly had numerous requests for higher prices on parts made for you on a contract basis. Most of the time the new price was probably accompanied by the brief explanation that "higher costs make this increase necessary" or "we are forced to pass on some of the increased costs resulting from our recent wage negotiations."

Most buyers don't accept the price increase on blind faith and without a whimper—but how many use the analytical approach? Suppose you are confronted with a 10% price increase—because, you are told, both wage and material costs went up 10%.

Does this mean the price to you should go up 10%? Definitely not. What the supplier's over-all increase in cost should be depends on the particular product and how important each of these factors is. If you know a little about costing and carry your questioning further than usual you can negotiate the increase with the supplier.

Use Cost Analysis

Some companies ask suppliers for cost breakdowns, while others feel that details of suppliers' costs are none of their affair as long as the business was obtained competitively. The nature of your business, the amount of Government work you are doing, and the special aspects of your relationships with your suppliers will determine whether it would be better to analyze price adjustment by obtaining a cost breakdown from the supplier, by figuring it out on the basis of information supplied by your own estimating department, or using a combination of both.

Since the use of the supplier's cost analysis is not widespread in industry, let's assume you are going to use figures supplied by your own estimators on the supposition that the part be made in your own factory. Here's what a summary of a typical cost breakdown would look like:

Material	30¢	
Direct Labor	10¢	
Manufacturing Overhead	25¢	
Total Manufacturing Cost		65¢
Administrative Expense		3¢
Profit		7¢
Total Price		75¢

Now if the suppliers' labor and material costs went up 10%, is the 10% increase in price justified? Should you agree to pay the requested 7½% increase in the cost of the part?

Add up the figures. The 10% increase in material comes to 3¢, in labor costs to 1¢. But there is an additional labor expense—that of such indirect labor as sweepers, watchmen, inspectors, etc. As a rule of thumb, you can assume that about half the manufacturing overhead is indirect labor. In our case, this would come to 12½¢, and 10% of that equals 1¼¢. So the cost increase for the supplier is 3¢ plus 1¢ plus 1¼¢ or a total of 5¼¢—not 7¢. Even if we add profit on the additional cost—and most accountants would agree that the supplier is entitled to it—the cost increase is still less than 6¢. So we have a basis for negotiation of at least 1¢.

When There Is No Cost Breakdown

Even if you have no opportunity to get a cost breakdown, you still have a few tools to arrive at the same conclusion.

For example, compare the price trend on this part with a composite of your over-all price structure, and with some outside barometer like the Bureau of Labor Statistics Index of Wholesale Commodity Prices. Are most of your prices for comparable parts up 10% also. How different are they—if at all—in respect to materials and processes used, labor input, and union conditions in various supplier plants? If all these elements are pretty much the same, and there's still a wide difference in price, you are quite justified in requesting the supplier to provide further substantiation for his price rise.

We're assuming in both situations above that material and labor costs have advanced by 10%. But again, taking the true analytical approach, you've got to be sure that you're not getting just roundhouse percentages. Material costs are easy to check out analytically.

If you don't already have it, get from the supplier or your print the type of material used in the part, and how much is used. The cost of material to the supplier is easily determined by multiplying current price by usage. A little more figuring and you know what the increase comes to in percentage figures.

Labor Information Available

Determining whether labor cost increased 10% or some other amount isn't too difficult either. First, most labor increases are part of a general pattern which is set by the biggest companies in the industry. Usually such increases are thoroughly reported in local papers and business publications like the Wall Street Journal and Journal of Commerce. In addition, your own personnel department can usually provide accurate information on wage settlements, or can get it for you in a hurry.

Once you know the amount of the increase in cents per hour, all you have to know is the previous average wage rate to compute the percentage by which labor costs increased. This you can get through your personnel department or from industry-wide figures published regularly by the Bureau of Labor Statistics. Even the latter data will give you a sufficiently accurate estimate of the true wage situation.

Legitimate increases in labor rates and material costs obviously are sound bases for increasing prices. But here again, don't let old ways of thinking take the fine edge off your cold analytical approach. The fact is that in the last three years both labor rates and raw material costs have been going up for most manufacturers—yet the over-all level of wholesale prices has remained virtually unchanged. And profits, in general, have remained fairly steady. How do you account for the difference?

Watch Productivity Trend

The answer is increased productivity—and that comes from increased investment in cost cutting facilities and equipment. Productivity has been increasing by about 4% a year, and management has been able to offset higher wage costs without increasing prices. There are, of course, variations in the over-all pattern of increased productivity, with some industries lagging in taking advantage of technological progress and others making excellent use of it.

What has all this to do with you? You're dealing with specific companies rather than averages. Even so, you can stay constantly aware that higher wage and material costs don't *necessarily* mean you have to pay higher prices. Better methods can offset these higher costs, and it's up to you to see whether or not

Price Analysis at Work

SITUATION: A supplier of a major assembly requests a price increase of $.25 per unit. Reason given for increase: "higher costs."

ANALYSIS:

A. Labor Increase

1. Total labor hours per job=.90 hours
2. Average increase per hour=.$1075 per hour
3. Estimate of labor cost increase

$.1075 per hour X .90 hours=$.0968 — $.0968

B. Increase in cost of vendor-purchased castings	.0745
C. Increase in cost of cartons	.0180
D. Steel increase 25# X $.06 cwt.=$.0075	.0075
E. Standard parts and gasket increase	.0140
F. Copper increase	.0075
Total Estimated Cost Increase	$.2183

CONCLUSION: Only $.2183 of the increase appears justified by incurred cost. Buyer negotiation recommended.

your suppliers are using them, and if not whether you might help them to install new machines or systems in their plants.

A buyer for an automotive company was visiting a supplier's plant on an entirely different project when he noted that the coil on a piece of electrical equipment he bought was being secured by winding tape around it by hand. He asked the supplier how much time the operation consumed and on his return to his office obtained data on how fast it could be done with an automatic tape winder. The time saving between the two methods would enable a cost saving of about $.0144 on the item, which was bought by the million annually. The buyer persuaded the supplier to install the moderately expensive equipment which, after it had paid for itself in a short time, brought a substantial saving to the automotive company.

Keep abreast of technological advances. Periodically visit suppliers' plants to make yourself thoroughly familiar with the methods he uses in manufacturing your products. Don't be bashful about making suggestions for cost-cutting—any supplier worth his salt will welcome rather than resent them. Methods improvement can be one of your positive tools in price negotiation. You're helping yourself and you're helping your supplier meet competition.

Study Basic Commodities

Long range study and analysis of your basic commodities' supply and demand situation helps you in two ways. It enables you not only to make your own buying plans, but helps you keep management up on some of the facts needed for over-all company planning.

If you buy commodities like copper, zinc, lead, coal, ore, aluminum, paper, glycerin, etc. in any appreciable amounts, you can get clues—not precise forecasts—as to what is going to happen to markets by a continuing study of all factors of supply and demand. The information you need for such studies, which should include charts of all movements in price, supply and demand—is readily available from trade associations, private economic data organizations, textbooks, and government publications.

On the supply side you will want to stay informed on availability of additional production, production costs and their relation to selling prices, inventories in producers' and consumers' hands, recent discoveries of new deposits (where applicable), and special considerations like labor conditions, the effect of international tensions, fluctuations of foreign exchange, future demand in now undeveloped countries, and the relationship of producers' capacity to current output.

Influencing the demand side are the trend of general business, technological developments increasing or decreasing the uses for the commodity, substitutes, profits of consumers of the commodity, inventories of products made from or with the commodity, the general price trend, etc.

External factors, such as government action designed to stimulate production and consumption, must also be considered.

Analysis of a market really involves weighing all these factors. The extent to which the activity is carried out depends, naturally, on your size, volume of purchases, and management's attitude toward long term forecasting.

A few general rules apply to the use of such accumulations of information. If the supply elements are the predominant force, for example, you can assume a trend toward lower prices and act accordingly. Determination of the trend takes a lot of practice, though. It will help to study all opposing factor for several periods in the past, then put down some practice conclusions. When the conclusions you make from your analysis begin to tie in with what

actually happened in those periods, you are on your way to successful use of the technique. But remember to be objective when you make your analyses. Remind yourself that you are looking for clues as to what might happen in the market—not for what you would like to happen.

Use General Economic Information

The very large corporations have specialized departments to handle almost any function—market research, economic planning, financial analysis, etc. What can the medium and smaller companies—who can't afford large groups of specialists—do about the collection and interpretation of the increasing amount of valuable general economic information now being made available to business?

A value analysis staff—or a group of buyers imbued with the value analysis spirit—can be of great help to their companies in this regard. Since purchasing is, with the possible exception of sales, the department most in contact with the business world outside it can exploit this advantage to the over-all benefit of the company. "Purchasing research"—which is another facet of value analysis—enables the department to dig into and assemble basic economic data, and gives it the basis for playing an important part in the company's sales forecasts.

In many companies, purchasing men are actually sitting in on the deliberations of the sales forecasting group. In significant numbers they are being named to companies' operating committees. You can prepare yourself to accept such an assignment by knowing what the basic statistical indicators are, how to interpret them, and how to coordinate them with over-all company plans.

This of course takes a little practice, but you can begin by recognizing the basic statistics, and then finding out where they can be obtained. For beginners, there's no better guide than the booklet "What's the Answer—A Brief Guide to Sources of Business Statistics" published by the U. S. Chamber of Commerce, Washington 6, D. C. (35¢).

Looking beyond the limited amount of economic information needed in your daily buying operations, you can contribute to your company's sales and profit forecast by keeping your colleagues informed on changes in price and supply of important commodities—in reference not only to your own company—but to your suppliers, and competitors. "There are many times" said John A. Hill, president of Air Reduction, in a notable speech, "when the procurement point of view is absolutely necessary . . . in operating committee deliberations . . . in order to reach a sound decision."



No accomplishment without making a start—

and starting right:

How to Get the Program Going

SETTING up a value analysis program in your department might mean making some very radical changes, or it might mean growing gracefully into it from the seeds that have already been planted. Whatever the case, you've got to be sure at the start that your management knows what you are talking about when you use the term; that they will agree to let you start the program; and that they will stick with you as it develops.

Fortunately a lot of the important spade work has been done—but it's up to you to put on the finishing touches. Major corporation executives have gone on record about the cost-saving possibilities in good purchasing; constant references and stories on value analysis in the purchasing field have finally been mined by the general business press for "dramatic" stories which have caught the eyes of executives; and the very pressure of competition is making management more sensitive than ever to cost-saving opportunities.

But your program still needs an on-the-spot sales approach. And if you are to be the salesman, you have to sell yourself on the idea first. You have seen what value analysis can do for others. If you honestly think none of it can work in your company don't bother trying to sell the idea to others.

But if you sincerely believe that the value way is your way, start your promotion immediately. Your approach to management may be a formal proposal. One excellent example of this type opens with a preface, explaining the background of the purchasing agent's proposal, sources of information, and an invitation to examine the voluminous files of evidence he has on the successful application of value analysis. Then follows a 13-page presentation with these general headings: Purchasing Analysis De-

Helpful References for Your Value Analysis Library

There's a world of valuable information available to help a value analyst do a better job. Shown here are some of the publications that contain such information, and others that can direct you to it.



"A Guide to Production Processes for the Purchasing Agent" by Arthur Ansley will be published this fall by Conover-Mast Publications, 205 E. 42nd Street, New York, N. Y.

"Value Analysis—What It Is, What It Can Do for You, How to Use It", by P. V. Farrell and D. S. Ammer, will be published this fall by Conover-Mast Publications, 205 E. 42nd Street, New York, N. Y.

"Profiting from Industrial Standardization" by Benjamin Melnitsky is published by Book Division, Conover-Mast Publications, Inc., 205 E. 42nd St., New York, N. Y.

"Fabricated Materials and Parts—A Comparison of Cost and Design Factors" describes, analyzes and compares 20 major manufacturing methods. It is published by Reinhold Publishing Corp., 330 W. 42nd Street, New York, N. Y.

"Purchasing—Principles and Applications" by Stuart F. Heinritz, a standard work in the procurement field, is published by Prentice-Hall, 70 Fifth Avenue, New York, N. Y.

"Where to Find It" and "Cutting Costs by Analyzing Values" are published by the National Association of Purchasing Agents and are available to members. The first is an excellent bibliography, covering the best articles and books on industrial purchasing written in the past couple of decades. The second is a very valuable handbook for individual or group training in the techniques of value analysis.

"Cost Accounting for Small Manufacturers" is a short, instructive booklet that should enable a novice in accounting to understand the fundamentals of cost analysis. Published by the Small Business Administration, it is available from the U. S. Government Printing Office, Washington 25, D.C., for 35¢ per copy.

"What's The Answer?—A brief guide to sources of business statistics" gives you the name, source, and a short description of the most important economic data published in this country. It is available from the Chamber of Commerce of the United States, Washington 6, D.C. at 35¢ a copy.

"How to Read a Financial Report" is an informative, easy to read booklet that will enable you to get a good idea of a vendor's financial standing and stability from his annual report. Issued free of charge by Merrill, Lynch, Pierce, Fenner & Beane, 70 Pine Street, New York, N. Y.

fined; Scope and Duties of a Purchase Analysis Engineer; Function of Purchasing Department; Purchasing Has Prerequisites; Dollar Savings Goal; Ten Fields of Activity; Typical Problems at our . . . . . Plant; Summary and Recommendations.

A real interest in value analysis, and a thorough study of its applicability to and potential for your operation can put you in the impressive position of being able to set a dollar-saving goal through value buying. A concrete figure of estimated saving for a coming given period—say a 3% reduction in over-all costs of purchased items—will quickly bring a response from management. Maybe tough competition demands that one of your product prices be lowered and you think value buying can do the job. This is a move that will put you on the spot—but if you're going in for value buying you might as well play for keeps.

If management buys the idea, your next move is to organize your program, based on your present physical set-up. On page 42 is a listing of the various means by which value analysis is now carried on in industry. These are only suggested plans—a number of companies actually use combinations of two or more arrangements. The point is to decide on what plan suits you best— and then stick with it as long as it shows signs of working out.

What Kind of Personnel You Need

Assuming for a moment that you are going to add one or more value analysts to your staff, what are the things to look for in selecting a man? (If you can draw the man from your own organization, so much the better, since you will have some familiarity with his background):

1. He should have some good practical shop experience—and a little buying experience helps a lot. A man with first hand knowledge of production machines, tool room, pattern shop, or maintenance, plus some native intelligence is good raw material for the value analysis section. Some of the most successful value analysts in the business have also come from the time study, methods improvement, or cost estimating departments. The familiarity they have with shop operations and their costs is extremely helpful to an understanding of relative values.

2. Educational standards need not be arbitrarily established. One prominent leader in the field has been quoted as saying that the ideal background for a value analyst was an engineering degree from M.I.T. and a business administration degree from the Harvard Business School. This is a theoretical ideal that shouldn't scare you away from the idea altogether. Such a background isn't essential to doing a good value analysis job. But some academic training in engineering principles and a grasp of cost accounting fundamentals is invaluable. Training in English composition can help a lot, since report writing is an important part of the value analyst's trade.

3. Perhaps the most important thing is the man's personality. He must definitely be the type who can put his ideas over to others tactfully but persuasively. He must have plenty of imagination—the ability and willingness to visualize something new, something better than the old way. An analyst can never be complacent—he must basically be dissatisfied with the way a thing is being done because he *knows* there must be a better way.

To keep this dissatisfaction at the proper pitch until he finds the better way, the value analyst has to have persistence. Practically every project he tackles is already being done quite satisfactorily—*he* has to find the key to greater value. This doesn't come in brilliant flashes. It takes a lot of steady plugging, dreaming up new ideas and throwing them out, reworking suggestions of his own or others. Value analysis is like wildcatting for oil—you may drill nine profitless, heartbreaking "dry holes" and then on the tenth try break open a gusher. But you've got to keep trying.

Look for a man who is aggressive enough to get behind an idea and present it confidently to other departments—and then keep following up to see what happens to it. On the other hand, be sure he's not so aggressive as to try and usurp the basic prerogatives of the buyer, the engineer, or other people involved.

When Buyers are the Analysts

If you are purchasing for a small company, you're likely to say that's a fine set of high-falutin' qualifications for a man to be added to a large staff—but what about me with three buyers who are doing a pretty good job and whom I don't want to replace?

Your basic job in such a situation is building on the good characteristics your people already have. If they're good buyers they probably already have some of the qualifications listed above. By providing them with leadership, by building up their confidence that they can do a good, analytical buying job with a little practice, you can move the value analysis concept quickly and profitably into your day-to-day buying operations.

Value Analysis in the Small Department

You can begin by explaining the value analysis concept to them and making clear to them that management is not only backing them, but expecting them to produce. Convince them of your determination to get the program going and keep it going—and then get down to specifics.

Depending on the number of people you have, start by setting up a "team" to work on a particular project—on one part, for example. Make one man responsible for the project (preferably the buyer of the part) and let another man round out the "team."

Assign a specific, regular time for this "team" to meet—say three o'clock every Monday afternoon. Haphazard scheduling of your meetings can wreck your whole program. Be sure they have the same meeting place every time—and be absolutely sure that it is isolated from all their daily routine—telephone calls, etc. Value analysis is an activity that needs intense, uninterrupted hard work—unless you accept that idea completely, you might as well forget the whole business.

PAGE _____ OF _____

WEEKLY REPORT OF PRICE CHANGES
PURCHASED PARTS AND MATERIALS
PRODUCTION ITEMS ONLY
Approved by Purchasing Agent

_____ DIVISION

DATE

*** REASON FOR CHANGE**

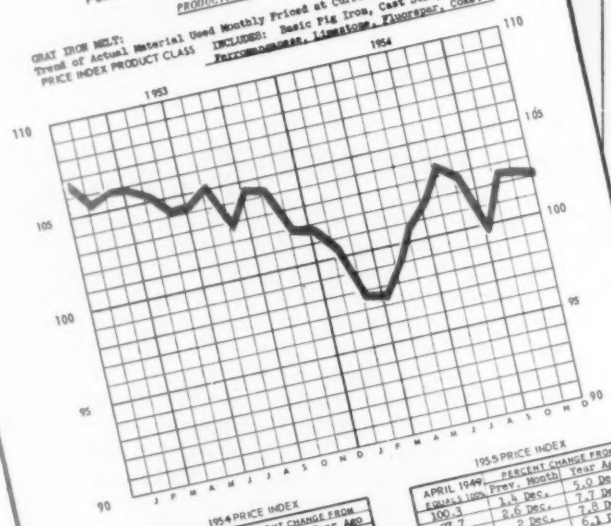
M - CHANGE IN MATERIAL COST
L - CHANGE IN LABOR COST
N - NEGOTIATED CHANGE
D - PRODUCT DESIGN CHANGE
S - SUBSTITUTE MATERIAL
Q - QUANTITY ONLY
OTHER - PLEASE EXPLAIN

PURCHASE ORDER NUMBER	PART NO. OR MAT'L. SPEC.	PART NAME OR DESCRIPTION	SUPPLIER	% BUY	AVERAGE MONTHLY USAGE	PURCHASE DATA						CHANGE		* REASON FOR CHANGE
						OLD			NEW			↑ OR —	%	
						QUANTITY & UNIT	UNIT PRICE	EFF. DATE	QUANTITY & UNIT	UNIT PRICE	EFF. DATE			

PURCHASE PARTS & MATERIALS PRICE CHANGES

PRODUCTION ITEMS ONLY

GRAY IRON MELT:
Trend of Actual Material Used Monthly Priced at Current Purchase Prices.
PRICE INDEX PRODUCT CLASS INCLUDES: Basic Pig Iron, Cast Scrap, Silicon, Ferromanganese, Limestone, Fluorspar, Coke.



1954 PRICE INDEX

	APRIL 1949 EQUALS 100%	PERCENT CHANGE FROM Prev. Month	PERCENT CHANGE FROM Year Ago
JAN	105.6	1.0 Dec.	
FEB	105.9	.3 Inc.	
MAR	105.8	.1 Dec.	5.1 Inc.
APR	105.3	.5 Dec.	4.4 Inc.
MAY	104.3	1.0 Dec.	5.1 Inc.
JUN	104.4	.1 Inc.	5.1 Inc.
JUL	105.0	.6 Inc.	.1 Inc.
AUG	102.9	2.0 Dec.	.2 Inc.
SEP	104.5	1.6 Inc.	1.5 Dec.
OCT	104.3	.2 Dec.	4.0 Dec.
NOV	101.9	2.3 Dec.	4.7 Dec.
DEC	101.7	.2 Dec.	

1955 PRICE INDEX

APRIL 1949 EQUALS 100%	PERCENT CHANGE FROM Prev. Month	PERCENT CHANGE FROM Year Ago
100.3	1.4 Dec.	5.0 Dec.
97.7	2.6 Dec.	7.7 Dec.
97.5	.2 Dec.	7.8 Dec.
98.9	1.4 Inc.	6.1 Dec.
102.2	2 Dec.	.5 Inc.

PURCHASE RESEARCH & ANALYSIS

TO: C. Draper — M.T. Terriss
H. Wilcox — P.H. Victor
P.W. Jones — I.J. Schrader

October 17, 1954

FROM: D.J. King — Purchasing Research and Analysis

PROJECT SUMMARY - PURCHASING RESEARCH & PRICE ANALYSIS PROGRAM

The following summarizes savings effected on projects completed by Purchasing Research and Price Analysis. This report supplements 1st and 2nd quarter reports to you dated April 6th and July 12th. You will note that the total savings effected for 31 projects accomplished during the first nine months of 1954 amounts to $71,492. Quarterly savings reflect quantity buy at that quarter's production schedule level, therefore the third quarter savings figure is abnormally lower, reflecting a cutback in schedules in that period.

	NUMBER OF PROJECTS	PROJECTED ANNUAL SAVINGS
12 Months 1953	17	$ 28,470
1st Quarter 1954	22	25,669
2nd Quarter 1954	4	10,425
3rd Quarter 1954	5	6,928
9 Months 1954		43,022

SUMMARY OF 3rd QUARTER PROJECTS COMPLETED

	SUPPLIER	PROJECT	PROJECTED ANNUAL SAVINGS
1.	A, B, and C	Oil and Lubricants Program (National Contract Price Negotiation by Specifications)	$ 3,236 (Partial to date)
2.	D	Cross Bars (Cost and Price Evaluation - Price Objectives)	2,640
3.	D-1	End Cases (32M) (Re-design Cost Savings)	211
4.	G	Companion Flanges (Cost and Price Evaluation- Price Objectives)	197
5.	R	Plastic unit knobs (Material Substitution)	643
			$ 6,927

Simple but complete records and reports help you check your own progress on value analysis and provide an effective means of keeping management informed of what savings are being made. Here are some sample forms you might adapt to your own needs: left, a price change chart for quick appraisal of how prices on particular items are moving; center, a weekly report on price changes; right, a cumulative quarterly report on how the program is going, for distribution to interested executives.

With the buyers undisturbed, let them start the questioning described earlier—and give them a minimum of two hours at every meeting. Depending on their knowledge of value analysis techniques, either sit in on their first couple of meetings to get them started, or let them carry the ball themselves from the start. Then you can drop in occasionally to offer some creative help.

Let them start with the fundamentals, and above all, don't put any limitations on their questioning. But be sure that they come prepared with the basic information on properties, availability, design possibilities, etc. of the part they are discussing. This preparation of the basic information should be the responsibility of the "team" leader.

Don't let yourself or your buyers get so hopped up

on the value analysis idea that you want to start with cost-reduction attacks on the big money items. For a starter, work with the smaller, volume, lower cost items, until you get the techniques perfected. "Putting a buyer or value analyst on the biggest items" says Larry Miles, head of General Electric's Value Analysis Staff, "is like starting a ball player in the big leagues without any minor league training. Let him start with things that won't cause a disaster if anything goes wrong."

Keep a record—or have your analysts keep a record—of their progress on particular items. Then when they have decided that a change or a new idea will definitely work, have them start pushing for acceptance from engineering or purchasing. If you have the cost-reduction committee set-up in your plant, it will probably be your job to present the idea at the next meeting of that group. But regardless of who is responsible for keeping the idea alive, make sure you know the status of every suggested change. Complete and thorough follow-up is essential for keeping your value analysis program rolling. A good idea is to call for progress reports on certain dates, and establish a target date for completion of a given project.

Measure and Report Your Progress

When the cost reduction is actually achieved, a final report should be made, describing precisely what has been done and what has been saved. Some companies assign a number to each savings project for better administrative control, but your own operating procedures will guide you in the selection of the right kind of record keeping.

Toot your own horn a little about cost reductions when they are demonstrably yours. This can be done with a monthly or quarterly report to top management, showing performance against the goal set up at the beginning of the program. All major projects completed should be listed. Include a brief description of the parts or commodities involved, what action was taken, and the dollar savings made. Don't be afraid to list your flops—after all value analysis by its very nature is a process of trial and error, and trying to make it appear as a "sure thing" defeats its purpose.

In addition to completed projects, list those that are in process. Discuss the status of each proposal and estimate a date for successful completion.

Who Gets the Credit?

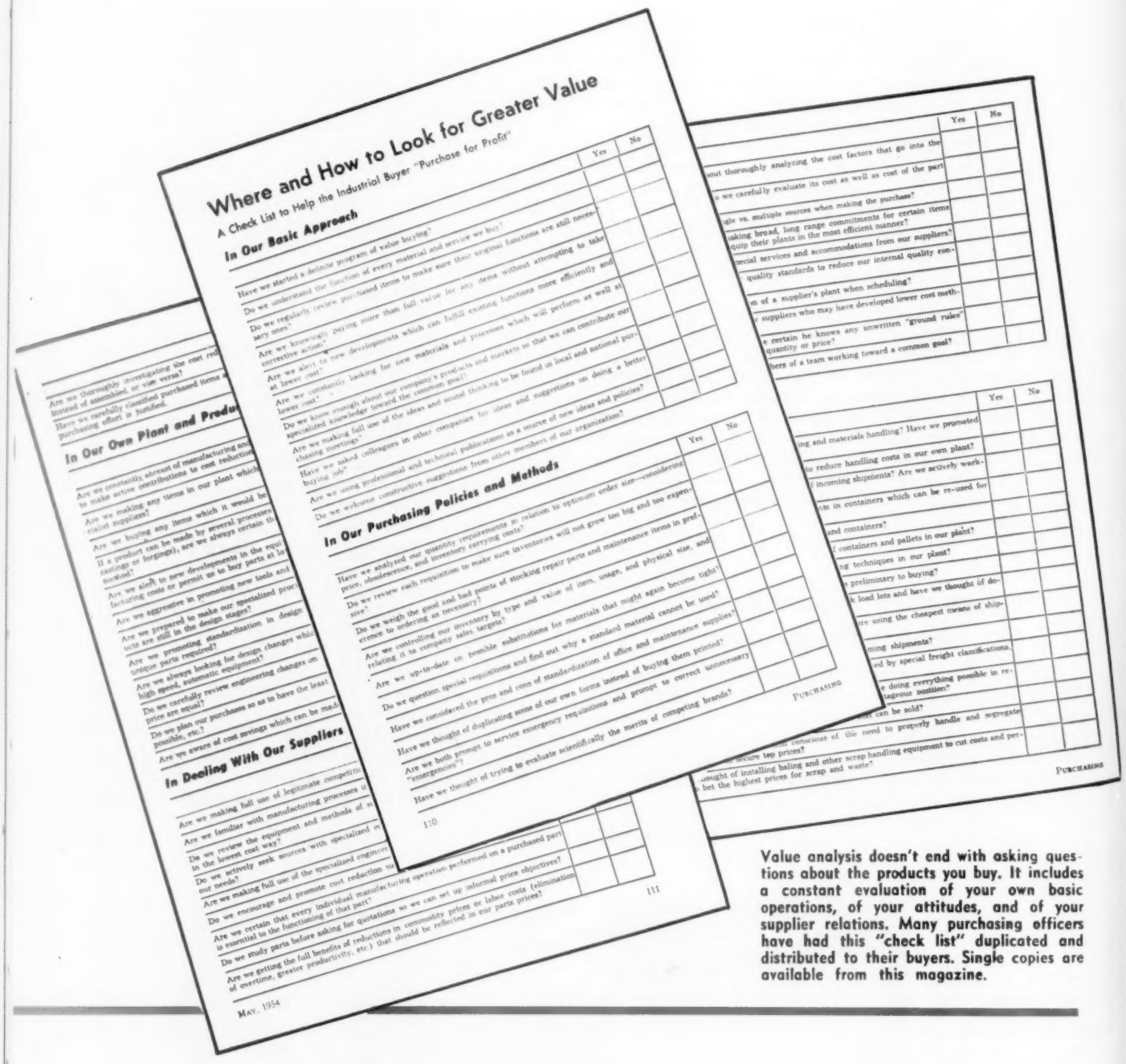
Keep a strict watch on claims for savings and on the way you hand out credit for legitimate cost savings. Without a true understanding of the principles of value analysis among your buyers, you're likely to run into some embarrassing claims—like the ones that come in "over the transom" through market changes or some circumstances completely outside the buyer's control. Voluntary re-submission of a bid, for example, should never be accepted as a "cost reduction."

Be careful in all cases of giving credit that it goes where it is due. Giving purchasing the bouquets for a successful reduction in costs when it played only a secondary part to some other department can mean sudden death to the whole program.

Annual reports or "score cards" are excellent administrative tools both for measuring the success of your program and for keeping up the interest of all parties involved. But they don't always tell the whole story. Real value analysis is a day-to-day operation that includes countless individual negotia-



It it's practicable, show your components display to everyone capable of coming up with a cost-saving idea — plant personnel, administrative groups, vendors. Westinghouse goes a step further with Purchasing-Vendor meetings, where suppliers get a chance to go over every angle of an assembly with the buyers who purchase the parts for it. F. L. Snyder (left) and J. H. Chiles are shown at a recent meeting in Sharon, Pa.



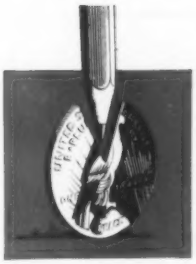
Value analysis doesn't end with asking questions about the products you buy. It includes a constant evaluation of your own basic operations, of your attitudes, and of your supplier relations. Many purchasing officers have had this "check list" duplicated and distributed to their buyers. Single copies are available from this magazine.

tions which might not be worth putting down as special savings. And savings reports often cannot show the precise effect cost changes have on individual performance. Nor can they be used to measure aggregate performance in controlling cost. To know what is happening to purchase costs, it is necessary to know about the price increases as well as the decreases.

The Purchase Price Index

One of the better ways to keep your finger on the pulse of prices is by compiling a purchase price index. A well-developed index can give you a very accurate picture of what the actual changes in prices are over a given period. With such an index, you can estimate precisely what the effect of given economic changes will be. If properly used, it will also give you a lot of help in objectively evaluating cost performance from year-to-year.

If you are seriously interested in building and maintaining an index, you've got to look forward to a little effort. But it will be well rewarded. Construction of an index is a rather complicated affair that cannot be completely covered here. A detailed explanation of the basic steps to take in setting up a purchase price index will appear in a new book on Value Analysis to be published this fall by Conover-Mast Publications.



Effective cost reduction demands continuing cooperative effort:

Keep Your Value Analysis Program "Sold"



Every department in your company has basically the same objective—a better product and bigger profit for the company as a whole. It's often only lack of personal contact that leads to misunderstandings and failure to cooperate. If you can get the whole organization interested in reducing costs through analysis—get your fellow department heads into regular meetings where you can swap ideas on cutting costs on each item in your product—you've got the foundation for a sound value analysis program.

IN describing the different techniques of Value Analysis, we have made references here and there to selling the idea—selling the idea to yourself, to your buyers, to your top management. It's not too much to say that this is the most important phase of all—and perhaps the hardest to define and measure. You may get lip service in your Value Analysis program, and you may even get a kind of mechanical cooperation, with your associates going through the motions. But unless you get everyone *thinking* Value Analysis with you, the program is licked before it starts.

Value is something that affects every operation of the company, and everyone in it. Your sales efforts on behalf of Value Analysis should not be restricted to the "big shots." True, management backing is needed, as has been pointed out. But a value-conscious management hasn't the time or inclination to check on the idea all the way down to the lowest levels—they'll back your efforts, but you've got to

[redacted] MANUFACTURING COMPANY

PURCHASING DIVISION

COST REDUCTION NOTES

ISSUE No. 3
DATE 6-7-54

COMMODITY	REASON FOR COST REDUCTION	ANNUAL SAVINGS (ESTIMATED)
Bronze for Pumps	10% reduction in price on bronze pump castings. Due mainly to reduced price of electrolytic Copper.	$ 8,000.00
Transformer Tanks	Assisted Sub-contractor in getting 2¢ # lower steel price (mill - now available - instead warehouse price) on 1080 tons.	43,000.00
	Also by newly increased competition reduced fabrication costs by 10%, for an annual estimated additional saving of	78,000.00
Foundry Coke	Supplier agreed to absorb freight of $1.00 a ton on 2640 Tons annual usage	2,640.00
	IDEAS THAT PAID OFF	
Labor Tickets	By change in design reduced price from $3.50/M to $3.00/M Changed from carbon coated to carbon interleaf - allowing use of rotary press.	4,000.00
Machining Costs	Arranged to recover our machine cost on purchased defective or poorly cleaned castings.	7,000.00
Front Wheel Flap For Cotton Picker	New material developed. Saved $1.75 ea. on 3050 pcs. Instead of belting material new flap made of molded rubber material similar to that used on highway trucks.	5,337.50
Power Take Off Shafts	Purchasing in 40" saw cut lengths instead of multiple lengths, saved 20.6¢ ea. net on 25,000 tractors.	5,150.00
Freight Rate	With the aid of supoliers and local traffic bureau, secured from Rate Commission, a decrease in the truck freight rate on bar steel [redacted], reducing rate [redacted] from 55¢ per cwt. to 48¢ or $1.40 a Ton on 16,000 Tons.	22,400.00

GOOD VENDOR RELATIONS ARE AKIN TO GOOD PUBLIC RELATIONS

Specific, clear information on what's being accomplished toward cost reduction inspires others to develop and present similar ideas. It also helps to dramatize your value analysis program with straight-forward facts, rather than fancy propaganda. The purchasing department of a large midwestern manufacturer uses regular "Cost Reduction Notes" like the one above very effectively.



Value analysis techniques are not limited to productive materials. They can be applied to office equipment and supplies, lighting, and other aspects of maintenance.

sell the idea and keep it sold at every level.

Every good P.A. should be a bit of a salesman—so the specific techniques you use on selling Value Analysis will vary according to your own ideas and your situation in the company. But before you start remember this one essential point—start with ME. The man who buys a product or an idea does it on the basis of "what it means to ME" or "what's in it for ME."

Now this doesn't mean that Value Analysis will be a flop unless it promises more money or a promotion to anyone who plays a part in it. Pride in accomplishment is a psychological factor too often overlooked in industry. It's true that cost reduction can mean greater profits for a company, and that the company's success means more security for the people working in it. But satisfaction in a job well done is a powerful stimulant to almost any individual —and that is one of the most important approaches to getting people interested in Value Analysis.

A highly successful Value Analyst simply, and almost casually, summed up the importance of this kind of appeal when he said, "When you see the product go out the back door with your ideas incorporated into it, it's a great feeling." That's the type of pride, and enthusiasm, that you have to generate and keep growing in everybody concerned with Value Analysis.

There are various ways to accomplish this—depending on your own situation. Use of company bulletin boards, in-plant newspapers or house organs, lobby displays, cafeteria displays, meetings, etc., have all proved effective in spreading the Value Analysis idea. Mention of names of individuals who have made outstanding contributions to the program is helpful.

One good example of publicity-plus-information is the one-sheet "Value Analysis News" distributed regularly to all interested departments by the General Electric Value Analysis Section headed by L. D. "Larry" Miles. A typical 5 x 7 sheet will carry a brief, stimulating message on some aspect of cost reduction, a sketch of some part or material on which a cost saving was made, details of the saving in terms of dollars, an exhortation like "Question **Every** Detail" and the name of the buyer or other individual to contact for further information. In this way specific helpful cost-saving ideas are brought to others' attention, the principles of Value Analysis are brought home in lively fashion, and the man who made a contribution gets recognition for his work.

Here's a few techniques now in use that you might try:

- Circulate articles on the subject of Value Analysis among all interested executives in your company, marking clearly any case histories showing how it is paying off for others;
- Get any printed material on Value Analysis or related subjects that you can for the company library, then let everyone know they are available;
- Write articles on the subject for your company publications;
- See if you can get top officials in the company to give talks on the subject to various groups;
- Bring company officials "into the act" by inviting them to attend your meetings on the subject, and by soliciting their ideas on how to carry out the program successfully.
- If you are the one responsible for spark-plugging your company's Value Analysis program, be careful to regard yourself as the "catalyst"—someone who is there to help move a good, money-saving idea along to reality. Make this concept clear to the people you will be working with. Don't try to grab too much credit for yourself or the people under you—sacrifice your own pride, if necessary to keep the program from foundering.

It's Up to You

By now, you may feel that to be any kind of Value Analyst you have to be a kind of remarkable combination of purchasing agent, engineer, accountant, salesman, public relations specialist, psychologist and philosopher. In a way that's right—but that's your



To Get—and Keep—Value Analysis Going . . . .

SET a definite goal

PLAN an organized program

ASSIGN specific responsibilities

PUT the "team" to work

ENCOURAGE suggestions—even "foolish" ones

FOLLOW-UP for results

PUSH adoption of recommended changes

SHARE the bouquets

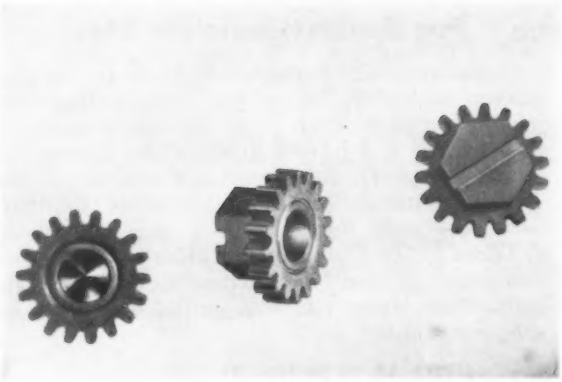
REPORT performance to management

DON'T STOP—START on your next project

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challenge. And if you are not ready to accept a challenge, you're not ready to be even a high-class clerk, much less purchasing agent and value analyst. Much is made of the need for representation of purchasing in management councils—but you'll never get there by shying away from the qualities management demands—intellectual curiosity, ability to get along with people, ambition to do a better job, and the perseverance to struggle for a new idea and then push it to fruition.

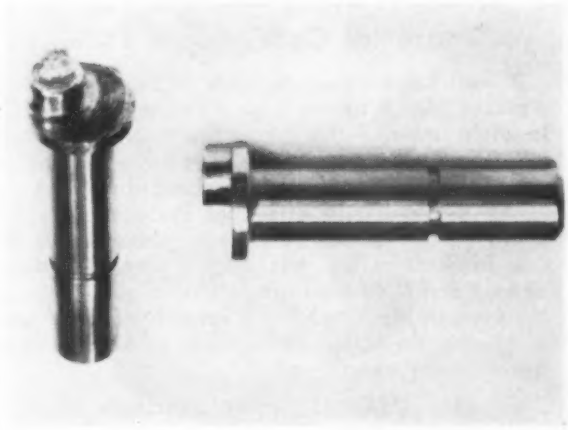
That, in essence, is what Value Analysis comes down to. It's sound buying refined to its most logical form. It's your challenge—and in the end your obligation to yourself and your company. It's hard work but it will return your company $10 for every $1 spent on it, and it will bring you recognition and self-satisfaction a thousandfold for every hour you spend on it.



Switch to Sintered Metal Cuts Cost From 74¢ to 5.8¢

In its earlier models, the Foxboro Co. made a pinion gear in its Consotrol Recorder by machining. At a cost of 74¢, the part was blanked on a screw machine, then the screw driver slot was milled and, finally, the burrs were removed. By substituting brass metal powder for brass pinion wire, the part can be sintered in a single operation at a saving of more than 68¢ per part. Also, this change permitted an addition of pinion heads so that initial calibration of the instrument could be done with either wrench or screw driver.

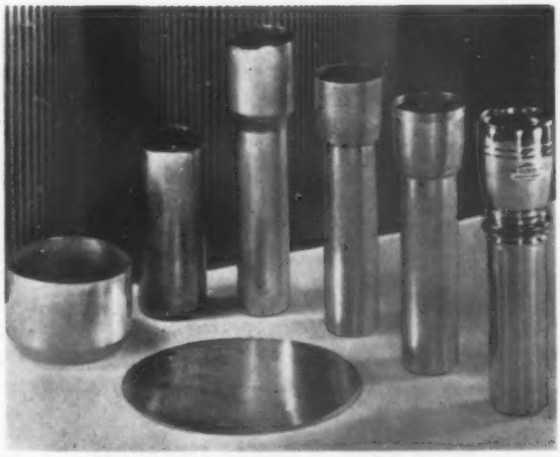
CIRCLE NO. 41 ON INQUIRY CARD—PAGE 17



Leaded Alloy Steel Boosts Production 43%

A leading manufacturer used to make a small cam shaft from AISI 4140 annealed alloy steel. It bought some Rycut 40 annealed alloy steel from Joseph T. Ryerson & Son, Inc. and made the same part 43% faster and, in addition, got a 300% increase in tool life. With the Rycut leaded steel, speed (SFM) went from 94 to 142. Pieces per tool sharpening increased from 300 to 1200. The part is made from 1" round bar stock. First two operations are on a 4 spindle 1¼ Greenless; the third is on a Browne & Sharpe #2G.

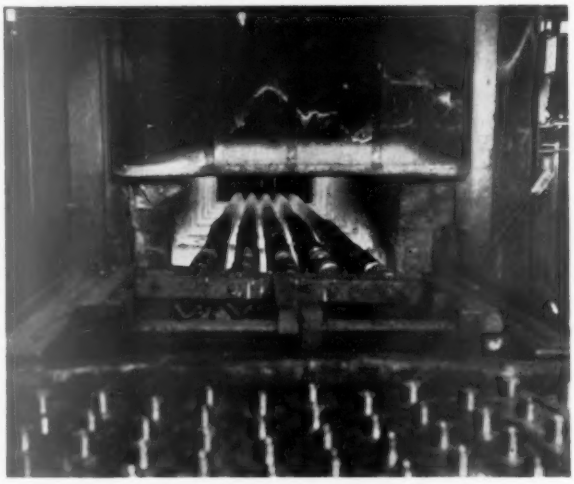
CIRCLE NO. 42 ON INQUIRY CARD—PAGE 17



Use of Coated Steel Strip Saves $100,000 A Year

On flashlights where brass had been traditionally used for cases, Ray-O-Vac Co. now uses electro-coated steel strip, supplied by Pittsburgh Steel Co. The material has brought a production saving of 17% to 20% or some $100,000 annually on three of the more popular models. The steel also produces a more rugged product—it won't flatten out if stood upon, whereas the brass case will.

CIRCLE NO. 43 ON INQUIRY CARD—PAGE 17



Silicon Carbide Skid Rails Far Outlast Stainless Steel

Carborundum's Refractories Division supplied silicon skid rails for a gas-fired, pusher type heating furnace. Each hour, 115 blanks weighing 13 lbs. each and heated to 1590F are turned out. After two years, these rails are still in service. They have needed no attention whatsoever. Stainless steel rails formerly used were completely replaced in two to three months, with frequent straightening required between changes. The metal rails were higher in initial cost than the refractory ones.

CIRCLE NO. 44 ON INQUIRY CARD—PAGE 17



Stainless Steel Replaces Plastic Material Costs Down 75%

A well known manufacturer of liquid fertilizer replaced plastic tubing with stainless steel tubing, In eight months this substitution has produced a 75% reduction in material costs. Plastic tubing used in processing the fertilizer broke down under the heat and attack of various chemicals in about two weeks. Stainless tubing, made by Carpenter Steel Co., has already lasted 16 times as long and the user estimates its life at 10 years. Involved in the process are corrosive agents such as phosphoric acid, potash, aqua ammonia nitrogen, and nitrogen urea.

CIRCLE NO. 45 ON INQUIRY CARD—PAGE 17



Aluminum Castings With Wire Thread Inserts Cut Weight 66%

Redesigning gas meters with cast aluminum housings instead of cast iron cut the weight of the meters 66% for Rockwell Manufacturing Co. This not only cut freight costs on incoming shipments of castings but made for easier handling during machining assembly, testing and crating. However, threads tapped in the softer metal are subject to stripping, galling and wear when steel pipe and steel screws are used. Rockwell was able to enjoy the advantages of aluminum by using stainless steel wire thread inserts of pipe thread series made by the Heli-Coil Corp. The inserts provide a gas-tight seal without the use of compound.

CIRCLE NO. 46 ON INQUIRY CARD—PAGE 17

WHEN WERE YOUR CHLORINE FACILITIES LAST EXAMINED?



It is a wise policy to have your chlorine equipment and facilities examined every year by a Columbia-Southern engineer.

Our Technical Staff will review this phase of your operation for efficiency and safety. They will consult with any of your employees on the proper methods of handling and unloading chlorine and review safety practices and first aid measures.

This is one of the many services Columbia-Southern renders to Chlorine users. Contact any of our offices today.

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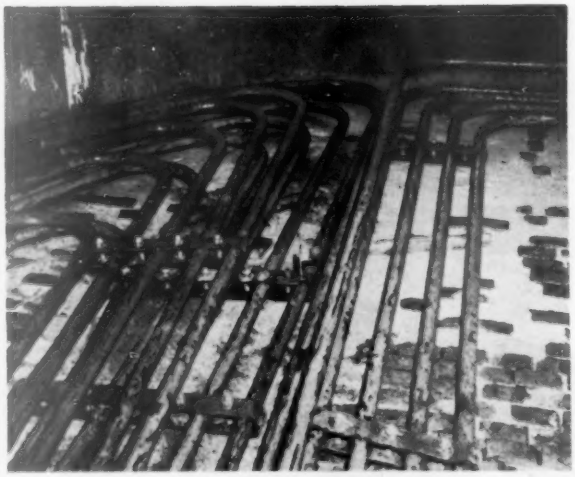
For More Information Circle No. 530 on Inquiry Card—Page 17



Alloy Steel Replaces More Expensive Material, Saves 60%

An extremely strong and readily fabricated steel is required for the rotor discs of small turbines manufactured by Elliott Co., Jeannette, Pa. It has to withstand high stresses at high temperatures and speeds as high as 6000 rpm. The Elliott Co. found that by using U. S. Steel's constructional alloy steel, "T-1," with a minimum yield strength of 90,000 psi and a creep rupture strength to 900 F, it saved 60% in costs in this turbine application compared with the expensive forged and cross-rolled alloy steel previously used.

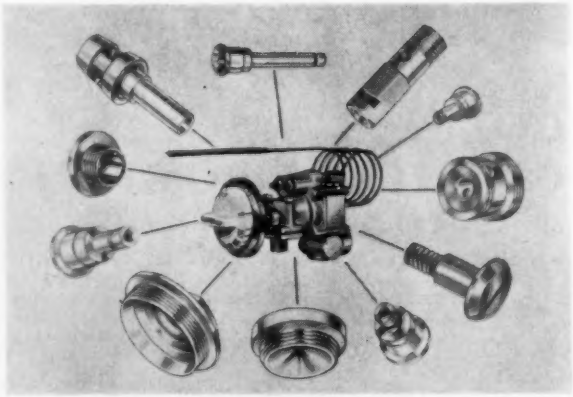
CIRCLE NO. 47 ON INQUIRY CARD—PAGE 17



Stainless Steel Eliminates Heating Coil Maintenance

A leading chemical manufacturer completely eliminated maintenance of heating coils in the manufacture of alum by making the coils from a special acid-resistant stainless steel, Carpenter No. 20-Cb. Coils made from this steel have withstood corrosive attack of boiling alum solutions for five years. Coils formerly made from lead covered brass and plain red brass required continual repairs with resultant interruption of production and steam leakage interfered with quality.

CIRCLE NO. 48 ON INQUIRY CARD—PAGE 17



Switch To Aluminum For Parts Lowers Costs, Improves Product

Robertshaw Thermostat Division switched from brass to Reynolds aluminum for a number of parts in its gas range oven thermostat. Parts included a gas cock plug (1), pilot body (2), orifice spuds (3), and dial screw (4). Among the advantages: lower cost, since three times as many parts are obtained per pound, and freight costs are lower; aluminum is not subject to corrosive attack by gases; aluminum is anodized on two of the parts, eliminating need for polishing and electroplating on item (4), and allowing use of color on item (3) to show type of gas for which spud is suited.

CIRCLE NO. 49 ON INQUIRY CARD—PAGE 17

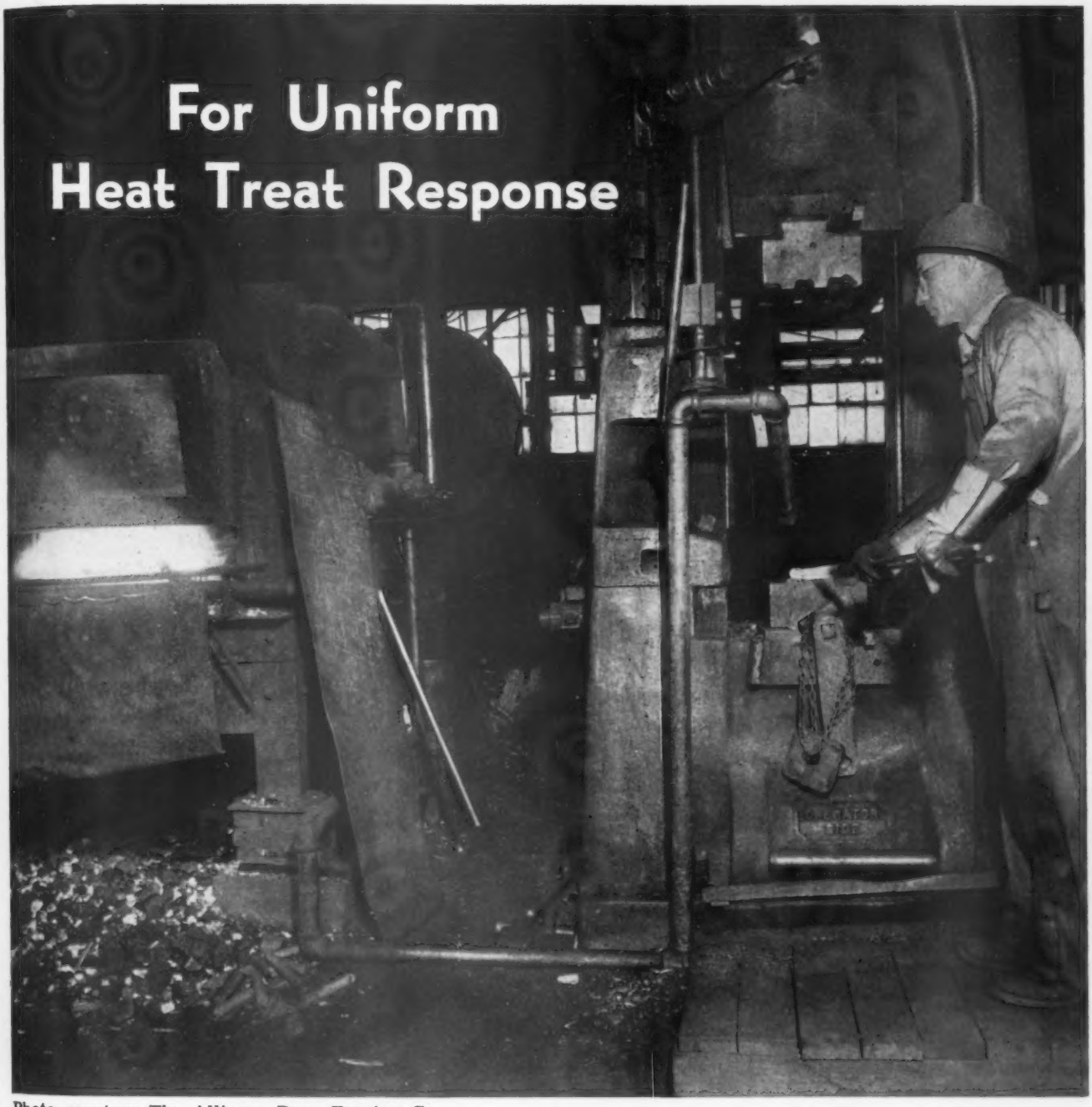


Photo courtesy The Alliance Drop Forging Co.

●Youngstown Hot Rolled Alloy Bars assure uniform response in our customers operations because such uniformity starts at the Ore Mines. At every operation, in Youngstown's completely integrated steel manufacturing facilities, rigid quality controls make certain that uniform chemistry, physical properties and dimensions are furnished.

SPECIFY

Youngstown

Hot Rolled QUALITY YOUNGSTOWN SERVICE Alloy Bars

THE YOUNGSTOWN SHEET AND TUBE COMPANY
Manufacturers of Carbon, Alloy and Yoloy Steel

General Offices: Youngstown, Ohio - District Sales Offices in Principal Cities

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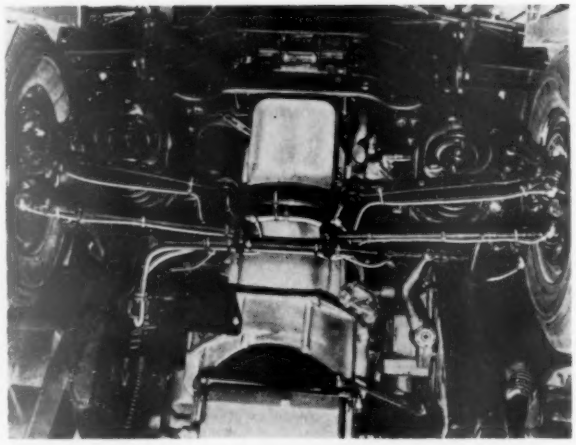
For More Information Circle No. 531 on Inquiry Card—Page 17



Plastic Dies Lower Tool Cost 50%; Lost Time Reduced

A resilient plastic, based on Shell Chemical Corporation's Epon resin and formulated by Kish Resin, Inc., Lansing, Mich., is being used in dies by Lockheed Aircraft Corp., Burbank, Calif., to produce 15 of the most difficult stainless steel and aluminum alloy airframe parts. The plastic makes it possible to cast a precision die from a model without machining or hand finishing. Lead punches and plastic materials with less dimensional stability have been replaced. Tool cost has been cut 50% and production lost time for replacement reduced 65%.

CIRCLE NO. 50 ON INQUIRY CARD—PAGE 17



Nylon Tubing Cuts Installation and Fabrication Costs

On two different make 1955 automobiles nylon tubing is now used instead of rubber hose or steel for power lubrication systems. The Nylaflow nylon tubing used is easy to fabricate in a harness and install on assembly lines. Conventional steel tubing must be pre-bent and installed in individual sections. With nylon, fabrication cost has been cut 60% and installation time slashed by 33%.

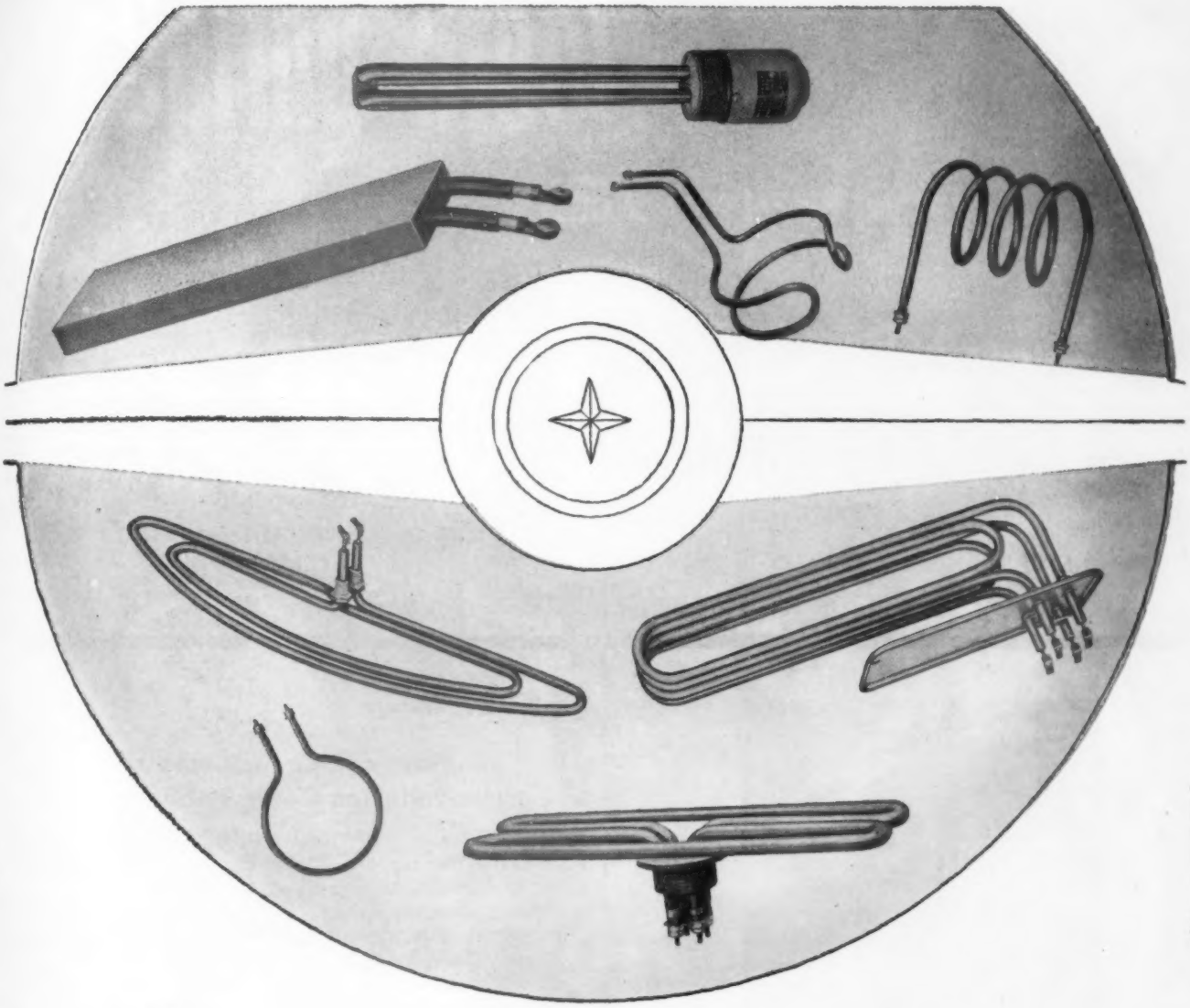
CIRCLE NO. 51 ON INQUIRY CARD—PAGE 17



Synthetic Core Resins Increase Production Up To 25%

Reading Gray Iron Castings, Inc., of Reading, Pa., has found that the faster bake-out properties of Borden synthetic resin core binders make three ovens do the work of four. In addition, they shake-out easier, contain no volatiles to gum up oven interiors and improve working conditions by minimizing smoke.

CIRCLE NO. 52 ON INQUIRY CARD—PAGE 17



Leading manufacturers specify

TRENTWELD Stainless Steel Tubing...



TRENTWELD stainless steel heat-resistant tubing was chosen by Cutler-Hammer, Inc., for the vital heating units in the new *Bendix* Duomatic washer-dryer.

Exposed to high operating temperatures, moisture and corrosive agents week after week, heating units have to be good to give the kind of long dependable service you expect from a famous-name product. That's why TRENTWELD'S excellent corrosion and heat-resistance make it an ideal choice.

You can specify TRENTWELD for your tubing needs with confidence, too. And nowhere can you get a wider selection. TRENT produces the largest assortment of stainless and high-alloy tubing in the industry... from ⅛" to 40" O.D.

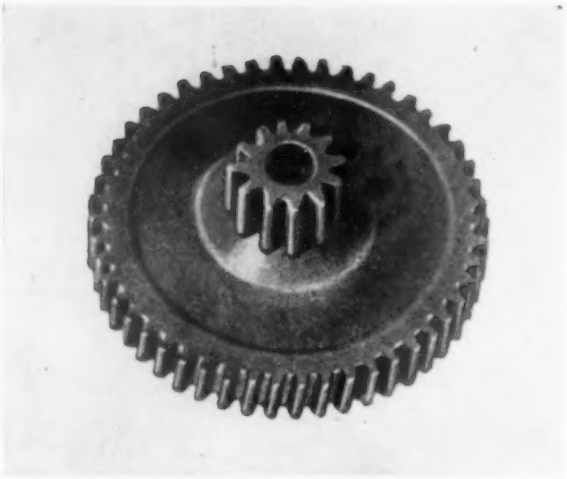
For your tubing applications, remember — *you can't buy better tubing than* TRENTWELD.

TRENTWELD

STAINLESS STEEL TUBING

TRENT TUBE COMPANY, GENERAL SALES OFFICES, EAST TROY, WISCONSIN (Subsidiary of CRUCIBLE STEEL COMPANY OF AMERICA)

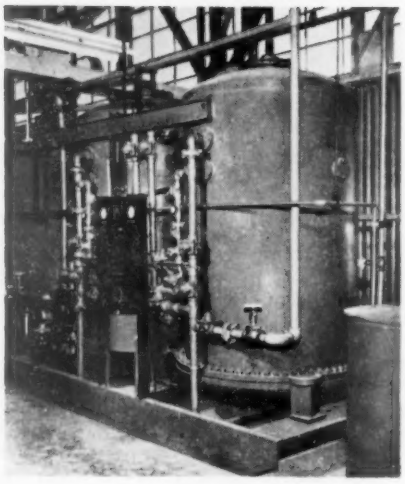
For More Information Circle No. 534 on Inquiry Card—Page 17



Change in Material Reduces Cost of Spur Gear 80%

A manufacturer of oscillating fans uses a helical gear cluster in its product. It was the first spur gear to be made with the iron powder process—and by switching to the material the manufacturer cut the cost of the part by 80%. Were the part made from conventional bar stock in two pieces, a number of machining operations would be necessary as well as a final assembly operation. In powdered metal, the part can be completed in a single operation.

CIRCLE NO. 53 ON INQUIRY CARD—PAGE 17



Plastic Pipe Reduces Installation Costs By 50%

Deionized water is used by General Electric at its Louisville, Ky., plant to wash refrigerators with an alkali solution and in rinsing before application of porcelain enamel. By using unplasticized polyvinyl chloride piping and injected molded fittings, made by Tube Turns Plastics, Inc., Louisville, Ky., instead of 304 stainless steel, first considered for the job, costs of the piping installation have been cut 50%.

CIRCLE NO. 54 ON INQUIRY CARD—PAGE 17

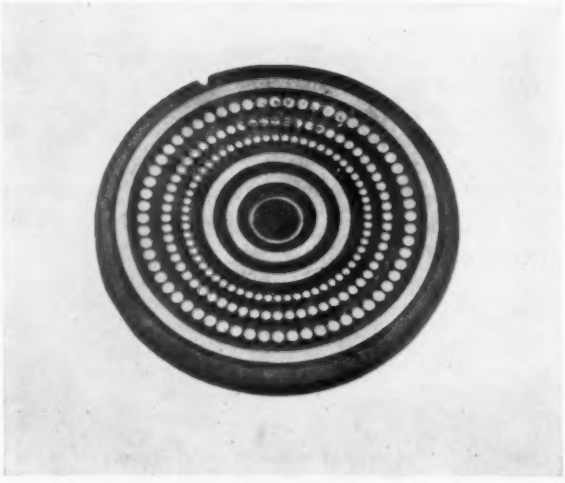


Plate Life Boosted 50 Times

By making its telemetering commutator plates from a glass-bonded mica, the Mycalex Corporation of America, Clifton, N. J. has eliminated many disadvantages such as distortion, high temperature warping, cold flow in storage, etc. that were encountered with laminates and fabricated or linen base phenolics, the materials previously used in the commutator plate. Mycalex 410, the material now used, assures permanent dimensional stability and freedom from moisture absorption. It has increased the test life of the commutator plates from 4 to 200 hours.

CIRCLE NO. 55 ON INQUIRY CARD—PAGE 17

Spring Steel

by SUPERIOR



for the

uniform behavior

you require

in fabrication!

in service!

Uniform, dependable response to your manufacturing processes and subsequent service requirements is outstanding in SUPERIOR Spring Steel. We build uniform behavior into every coil, from specified analysis of composition to final anneal before shipment. We're strip steel specialists: *you gain by it.* Specify SUPERIOR for your spring steel needs!

Superior Steel

CORPORATION

CARNEGIE, PENNSYLVANIA

TAYLOR Laminated Plastics Vulcanized Fibre

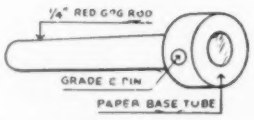
Shop Talk

TAYLOR FIBRE CO.

Plants in Norristown, Pa. and La Verne, Calif.

PHENOL—MELAMINE—SILICONE—EPOXY LAMINATES • COMBINATION LAMINATES • VULCANIZED FIBRE • POLYESTER GLASS ROD

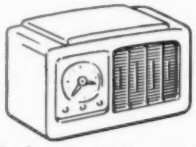
Tips for designers



Reset cam button is made of Taylor Polyester Glass Rod. Colored all the way through, it needs no painting or machining. Color never wears off.



Strong, silent gears are readily machined out of Taylor fabric base phenol laminates . . . noted for high mechanical strength.



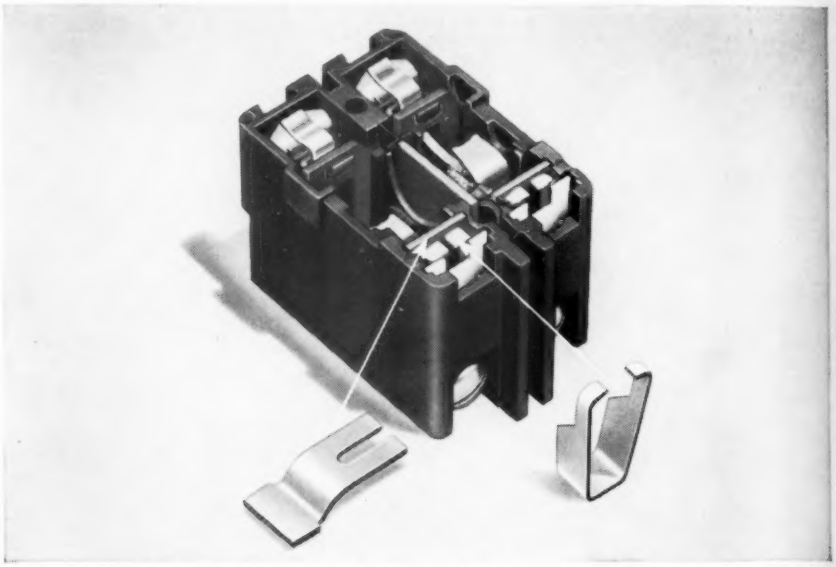
Perforated sheets of Taylor Vulcanized Fibre or Taylor Phenol Laminates make economical, high-strength speaker grilles for radio and TV sets.



Pop-up toaster switch and relay insulation was changed from laminated mica to Taylor G-5 Laminate . . . for easier fabrication and excellent heat resistance.

TAYLOR FABRICATING FACILITIES

Your production can be simplified . . . schedules safeguarded . . . inventory headaches cured . . . and overall costs reduced by having Taylor fabricate finished parts to your specifications. Efficient, modern facilities are ready to serve you. Get in touch with Taylor about your specific requirements.



Arc chutes in this circuit breaker are made of Taylor Vulcanized Fibre . . . noted for its arc resistance and electrical insulating properties.

Versatile properties, reasonable cost — try Taylor Vulcanized Fibre

Next time you tackle a materials problem in product design take a look at Taylor Vulcanized Fibre. A time-proved material with thousands of known applications, Taylor Vulcanized Fibre is finding new uses every day. Why? Because it offers a wide range of properties at low cost, places at your disposal a unique combination of performance and economy characteristics.

It's an excellent insulator . . . widely used in electric motors, transformers, appliances and scores of like products.

It's arc-resistant . . . does not readily carbonize and form arc paths, won't track due to air arcs. Use it in arc chambers and chutes in circuit breakers and switches.

It's strong . . . has excellent tensile and compressive properties, resists wear and abrasion. Use it in gaskets, washers, cams, workbench tops, sanding discs, and other structural parts.

It's resilient . . . takes severe shock without permanent deformation. Use it for inserts in golf clubs, for bumper blocks . . . anywhere you need high impact resistance.

It machines to high finish . . . produces smooth, long-wearing surfaces. Use it in textile shuttles and bobbins and other parts.

It bonds readily . . . to itself, to wood or to other materials. Use it in luggage, receptacles and mill boxes.

It's economical to fabricate . . . provides real cost savings in punching, stamping, drilling, cutting and forming.

Actually, these are only a sample of the applications that keep developing for Taylor Vulcanized Fibre. It comes in a choice of eight different grades, and in a variety of colors. It is supplied in the largest sheet size in the industry . . . also in rolls, strips and turned rods. A Taylor representative near you will be glad to discuss ways that you can put this material to work in your products.

For More Information Circle No. 550 on Inquiry Card—Page 17



TO BENEFIT USERS OF ALL SANDVIK PRODUCTS

The new Sandvik building provides modern, expanded facilities for the *administrative, production* and *Eastern Warehouse* operations of the main company and all divisions, including:

SANDVIK-COROMANT
Carbide Tipped Tools, Blanks and Inserts, Milling and Combination Cutters.

SANDSTEEL SPRING
Power springs for watches, instruments, office machines and other industrial uses.

SANDVIK STEEL BELT CONVEYORS
Cold rolled Carbon and Stainless Steel Belt Conveyors for Material Handling and Processing.

SANDVIK SAW & TOOL
High Quality Swedish Hardware, Tools and Specialties.

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Sandvik Quality Steels

SS-107

For applications which require HIGH FATIGUE LIFE, FINE SURFACE FINISH, ACCURATE & UNIFORM GAUGE specify SANDVIK cold rolled specialty strip steels.

You can get Sandvik strip steels:

- **In special analyses for specific applications.**
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- **In straight carbon and alloy grades.**
- **Annealed, unannealed or hardened and tempered.**
- **Polished bright, yellow or blue.**
- **With square, round or dressed edges.**
- **Wide range of sizes in stock—**
  —or slit to your specifications

Ask your nearest Sandvik office for further information or technical assistance.

Sandvik Swedish Specialty Strip Steels are used for Textile Machine Parts such as sinkers, needles, etc. • Band Saws (metal, wood and butcher) • Camera Shutters • Clock and Watch Springs • Compressor Valves • Doctor Blades • Feeler Gauges • Knives such as cigarette knives, surgical, etc. • Razor Blades • Shock Absorbers • A Wide Variety of Springs • Trowels • Reeds: Vibrator, Textile, etc. • Piston Ring Segment and Expanders • and many other applications.

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For More Information Circle No. 551 on Inquiry Card—Page 17



MISTER—YOU BUY COST SAVINGS WHEN YOU BUY EASY-FLO AND SIL-FOS

You buy savings in metal joining time, labor and materials when you purchase these tried-and-proved low-temperature silver brazing alloys. That's because their low flow points, exceptional fluidity and silver content combine to make brazing a surprisingly fast, simple economical operation.

This is particularly true when you use EASY-FLO and SIL-FOS with a setup that "automationizes" the actual brazing.

Here's a typical example . . .



Photos and data courtesy of [illegible] Industries, Inc., Rochester, N. Y.

• IT TAKES ONLY 4 SECONDS

with EASY-FLO 45, to make an oil and air-tight braze of a threaded spud into the cover of the pressure switch which is part of the Studebaker anti-creep "hill holding" device. Operator merely sets covers on holders on an endless chain, and places in each cover a spud with a ring of EASY-FLO 45 preplaced. Assemblies pass through an induction heating coil 14 a minute.



THIS EASY-FLO 45 RING DOES IT!

Expert brazing production know-how is always at the call of every EASY-FLO and SIL-FOS user without obligation.

WRITE FOR THE "AUTHORIZED DISTRIBUTOR LIST" and get prompt supply from the nearest one.

FOR EASY-FLO AND SIL-FOS FACTS IN PRINT . . . write today for a copy of Bulletin 20.



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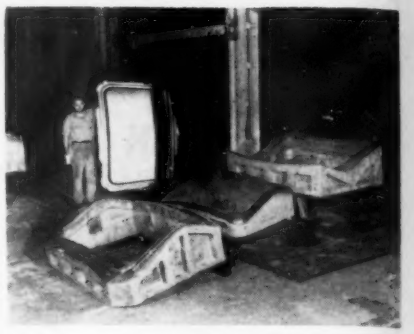
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There's no "...or equal" for EASY-FLO and SIL-FOS

For More Information Circle No. 552 on Inquiry Card—Page 17

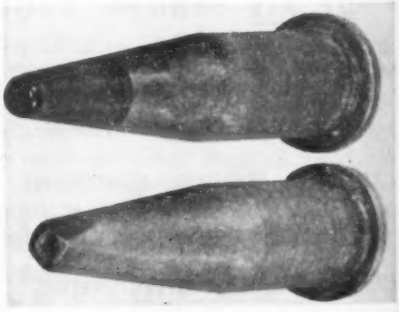
Plastic Die Facing Cuts Production Cost 25%



At the Hillsdale, Mich. plant of Allied Products Corporation, cold-rolled steel is formed into luggage compartment doors by a plastic-faced draw die. Cost of the die was reduced about 25% and delivery speeded up 40% by facing it with a Rezolin compound which can be cast to close tolerance and requires little finishing. The compound, which is based on Bakelite epoxy resins, is bonded to the die base of zinc alloy. With this technique of plastic tooling, much of the costly machining necessary for steel dies is eliminated.

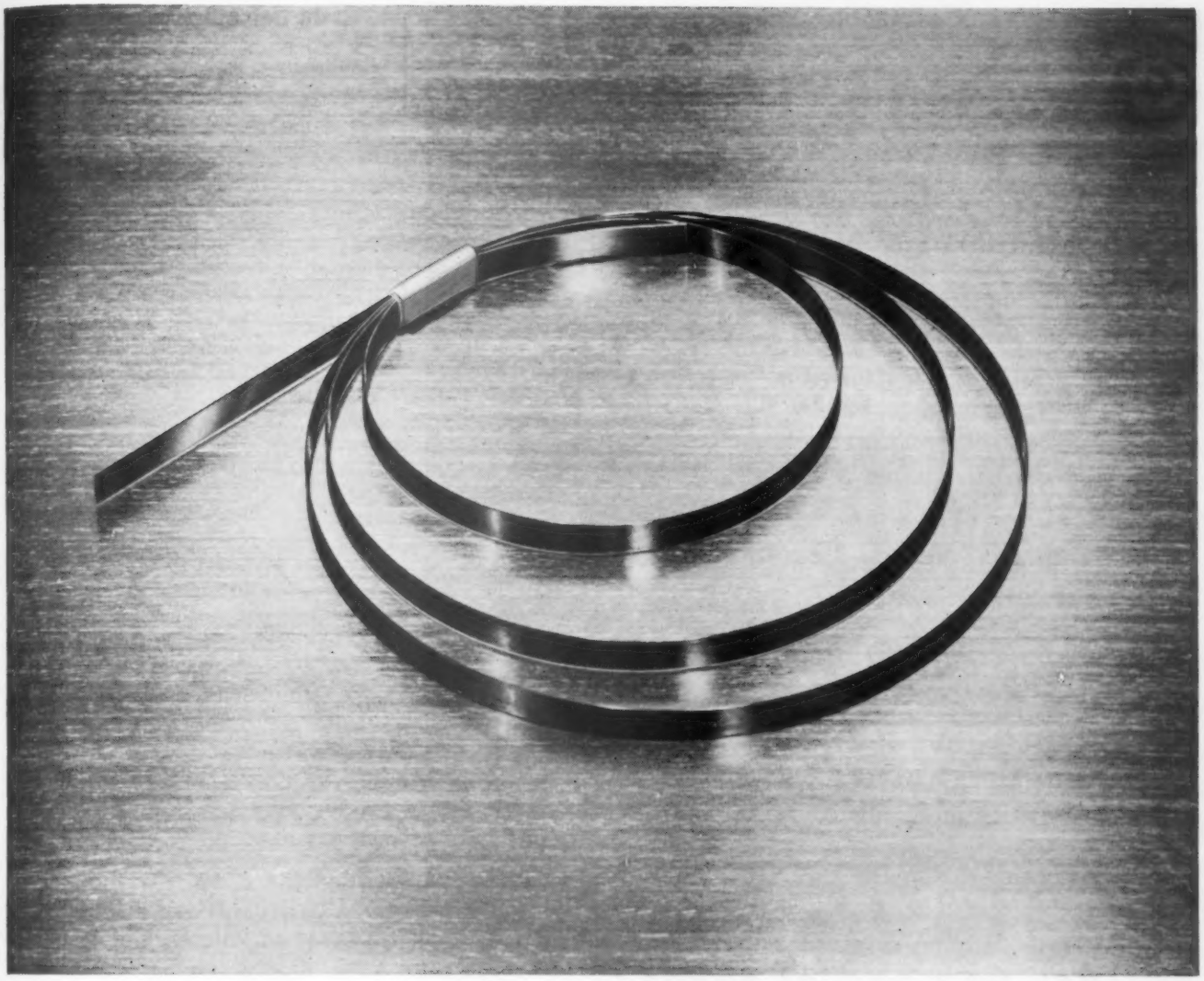
Circle No. 71 on Inquiry Card—Page 17

Carbide Tipped Nozzles Cost 70% Less to Use



A sash and door manufacturer in a southern state found that the tip of putty gun nozzles, made of conventional steel, only lasted 54 hours of continuous wear when applying putty under heavy air pressure. After K-6 Kennametal was substituted in the tip, no signs of wear have appeared after a year's service, or approximately 2,080 hours. It is estimated that carbide nozzles will give at least two more years of service than steel nozzles at a cost of 1½¢ an hour compared with 5¢ to 7¢ for steel nozzles.

Circle No. 72 on Inquiry Card—Page 17



TWO STRIPS OF COLD-ROLLED STEEL?

That's right. The picture above was made from a photograph of two strips of Uddeholm cold-rolled strip steel, both shown here actual size. You see one, 3/16-inch wide, but where is the second? You've probably guessed it: the entire background of the picture is a wide strip of cold-rolled steel.

We took this picture to illustrate the great range of sizes you can get when you order Uddeholm Swedish strip steel.

Widths from 1/8 to 16 1/4 inches.
Thicknesses from .001 to .125 inches; tolerances as close as ±8/100,000 of an inch.

Stocks of clock spring steel, bandsaw, flapper valve, thickness gauge, razor, and many other types, in many finishes, are carried in New York, Cleveland, and Los Angeles.

WRITE FOR SUBSCRIPTION TO UDDEHOLM'S MONTHLY STOCK LIST OF STRIP STEELS.

UDDEHOLM, 155 East 44th St., New York 17, N. Y.

Please send me monthly strip steels stock list.

NAME_____

TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

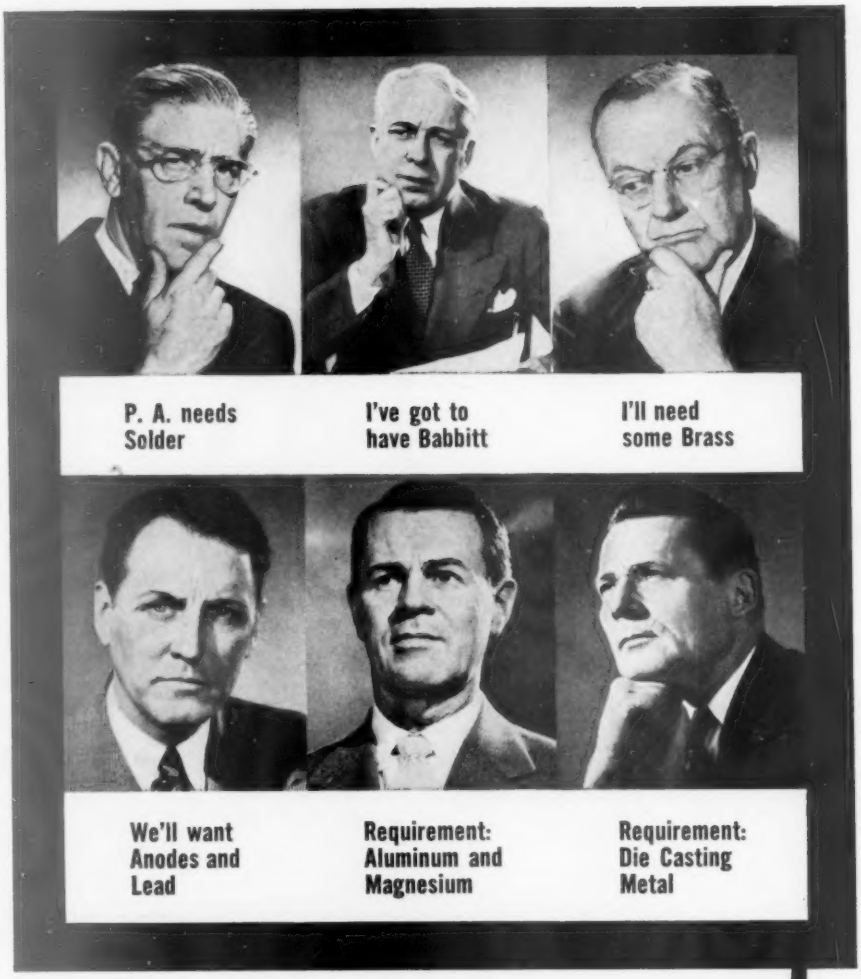
UHB

UDDEHOLM COMPANY OF AMERICA, INC.

Tool and Die Steels
Specialty Strip Steels

New York: 155 East 44th Street, MUrray Hill 7-4575
Cleveland: 3756 Carnegie Avenue, HEnderson 1-7440
Los Angeles: 5037 Telegraph Road, ANgelus 2-5121

For More Information Circle No. 553 on Inquiry Card—Page 17



Are you one of these?

If you are, your source is Federated Metals . . . for one or for all non-ferrous metals.

Federated, a division of American Smelting and Refining Company, is a nationwide organization with 14 plants and 24 sales offices for better service and faster delivery.

See Federated First for all Non-Ferrous Metals.

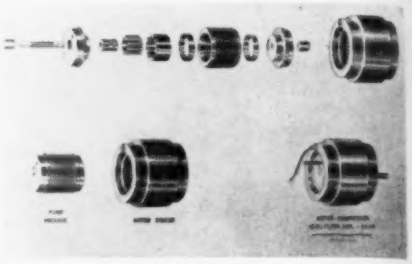
Federated Metals Division

AMERICAN SMELTING AND REFINING COMPANY
120 BROADWAY, NEW YORK 5, N. Y.
In Canada: Federated Metals Canada, Ltd., Toronto and Montreal

Aluminum, Magnesium, Babbitts, Brass, Bronze, Anodes, Zinc Dust, Die Casting Metals, Lead and Lead Products, Solders, Type Metals

For More Information Circle No. 554 on Inquiry Card—Page 17

Resin Helps Cut Weight 60%



Wetmore Hodges & Associates recently developed a compressor in which the actual compressor mechanism is placed inside the electrical driven members. This results in 60% reduction in dead weight (reducing shipping costs) and reduces the number of parts from 110 to 12 (simplifying manufacture). Such a design is possible only if the stator is made impervious to all types of fluids since it serves as the outer casing for the entire unit. Answer to the problem was Shell Chemical Epon resin. Used to impregnate stator laminations and windings, it makes the entire stator leakproof at high pressures.

Circle No. 73 on Inquiry Card—Page 17

Steel Chill 'dag' Coating Saves on Rejects, Metal Loss



Oberdorfer Foundries Inc., Syracuse, N. Y., is making sounder sand castings of aluminum alloy jet engine fuel pump bodies by coating steel chills with a "dag" colloidal graphite dispersion. The film results in substantial savings on rejects and metal loss by preventing the aluminum from fusing to the chills. After several steps in production, the chills are heated to 350F to remove moisture, sprayed with the Acheson Colloids Co. solution and held at 450F until placed in the mold.

Circle No. 74 on Inquiry Card—Page 17



Keep it Clean with felt

Washing machines need good, tight, long-lasting seals to keep water where it belongs, oil and grease in the right places, too. Felt seals by American protect the trouble-free reputation of many products of all kinds from tractors to electric motors. It is important to select the right quality for every application. American engineers will collaborate with you on specifications.

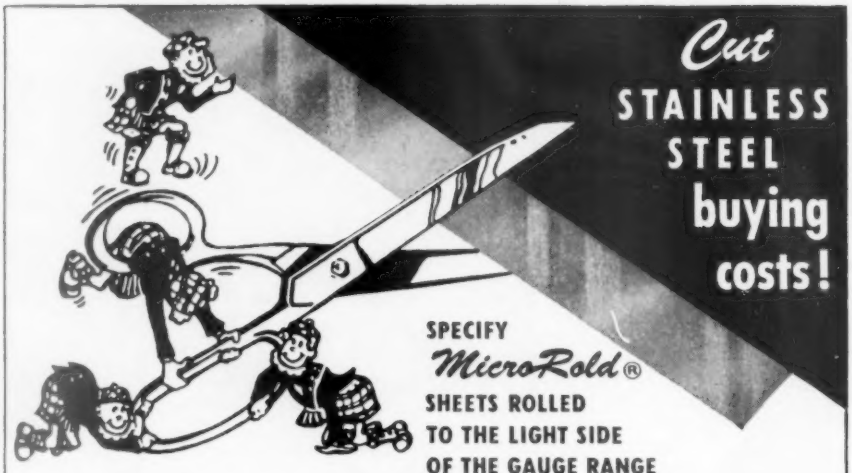


Seals are available from American in plain felt, or laminated with one or more layers of impervious, oil-proof Hycar. Tell us what you want a seal to do and we will show you the seal that should do it.

American Felt Company
TRADE MARK ®

GENERAL OFFICES: 74 GLENVILLE ROAD, GLENVILLE, CONN.
SALES OFFICES: New York, Boston, Chicago, Detroit, Cleveland, Rochester, Philadelphia, St. Louis, Atlanta, Dallas, San Francisco, Los Angeles, Portland, Seattle, Montreal.—PLANTS: Glenville, Conn.; Franklin, Mass.; Newburgh, N. Y.; Detroit, Mich.; Westerly, R. I.—ENGINEERING AND RESEARCH LABORATORIES: Glenville, Conn.

For More Information Circle No. 557 on Inquiry Card—Page 17



Cut STAINLESS STEEL buying costs!

SPECIFY *MicroRold*®
SHEETS ROLLED
TO THE LIGHT SIDE
OF THE GAUGE RANGE

Washington Steel's production methods provide new economies in the purchase of stainless sheet. The controlled accuracy of gauge in the rolling process gives you more area per ton or the equivalent area with lesser weight. This close adherence to specified gauge also results in longer die life.

Washington Steel
CORPORATION
WASHINGTON, PENNSYLVANIA

Your steel warehouse distributor will gladly tell you the Micro-Rold Story.

For More Information Circle No. 558 on Inquiry Card—Page 17

Carbide Tipped Saw Increases Output 30%



American Seating Co. of Grand Rapids, Mich. used to use an 18 inch circular steel saw to cut veneer used on seat backs. Resharpening was necessary daily and the saw had to be replaced after five weeks use. As the saw wore down, it was necessary to make two cuts instead of just one. Since a Carboloy tipped saw has been used, it has been necessary to sharpen it but once every five weeks and replace tips once a year. The veneer can always be sawed with a single cut. As a result, production is up 30% and costs are down.

Circle No. 75 on Inquiry Card—Page 17

HOT DIP GALVANIZING

...EXCELLENT FACILITIES for PICKLING & OILING

Our Record: Over 50 years of progressive galvanizing service to manufacturers and fabricators of iron and steel products . . . any size or shape, any size order from the smallest to the largest. *Excellent facilities for pickling and oiling.*

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ENTERPRISE GALVANIZING CO.
2519 E. CUMBERLAND STREET
PHILADELPHIA 25, PENNSYLVANIA

For More Information Circle No. 559 on Inquiry Card—Page 17

Quick Reference Legal Help For The Purchasing Agent

"PURCHASE LAW MANUAL"

390 pages, 56 chapters, cross-indexed
5⅜ x 8, $6.00

By Albert Woodruff Gray

Foreword by Stuart F. Heinritz
Editor, *Purchasing*

This new manual gives you practical help in determining your legal rights and obligations in every purchasing situation.

Now you can have at your fingertips —ready for instant reference—reliable guidance that will help keep you posted on your legal status when dealing with suppliers.

PURCHASE LAW MANUAL is divided into 56 short chapters—completely cross indexed. Key points you must keep in mind are listed at the beginning of each chapter—*all designed specifically for quick and easy reference.*

Here is a desk book no purchasing agent or buyer should be without!

10-day Free Examination

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205 E. 42nd St., New York 17

For More Information Circle No. 560 on Inquiry Card—Page 17

In-Plant Slitting Cuts Silicon Strip Cost 60%



Because steel mills did not supply silicon strip in the very narrow widths it required, Instruments & Accessories Co. had to make use of outside slitting service. The company, which manufactures instrument transformers, recently purchased a Stanat production model rotary gang slitter. In addition to reducing inventory requirements, improving quality, and speeding production, the slitter has cut the company's cost of silicon strip by 60%. It is estimated that the slitter will pay for itself in two years.

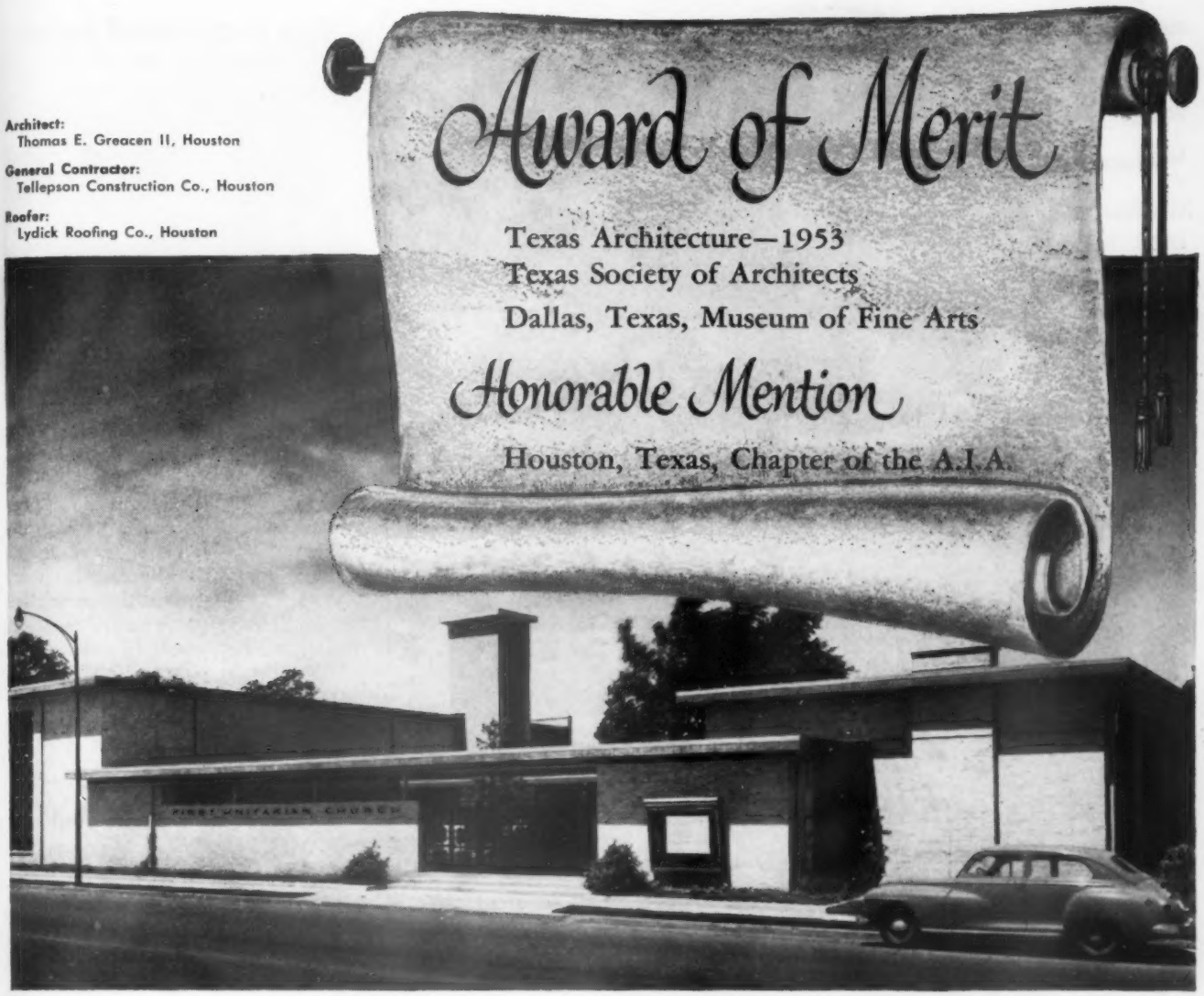
Circle No. 76 on Inquiry Card—Page 17

For More Information Circle No. 561 on Inquiry Card—Page 17→

Architect:
Thomas E. Greacen II, Houston

General Contractor:
Tellepson Construction Co., Houston

Roofer:
Lydick Roofing Co., Houston



Award-winning church is protected by a KOPPERS ROOF

see our catalog in ARCHITECTURAL FILE or write for copy

Here is the First Unitarian Church of Houston, Texas. A glance tells you it is attractively designed . . . functionally designed. And, as shown on the scroll, it has been acclaimed by architectural societies.

This award-winning structure is protected by a Koppers Built-Up Roof. Bonded for 20 years, this roof will give long, trouble-free service.

Many Koppers Pitch and Felt Roofs have been in use for more than 30 years. Coal-tar pitch, the basic ingredient in Koppers Roofs, gets most of the credit for this long service life. Pitch is famous for its waterproofing properties, and for sealing itself when minor cracks occur.

If your plans call for a flat roof, be sure to specify Koppers. Full information on request, or see our specifications in Section 7a—Sweet's Architectural File.

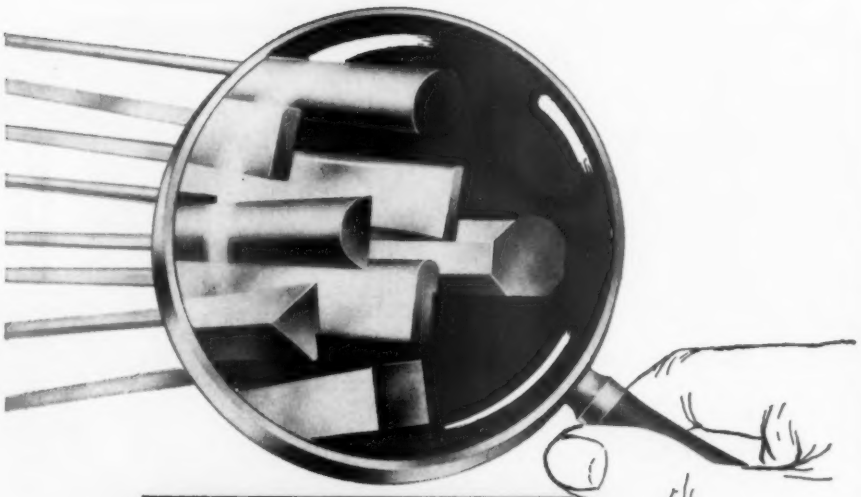
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DISTRICT OFFICES: BOSTON, CHICAGO, LOS ANGELES, NEW YORK, PITTSBURGH, AND WOODWARD, ALA.

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For More Information Circle No. 563 on Inquiry Card—Page 17



ALLOY SPECIAL WIRE SHAPES

Cut Costs . . . Improve Product Performance

Alloy Special Wire Shapes reduce costly machining time and cut metal waste. No need to start with round wire and machine half of it away to get the shape you want. We can supply you with Stainless Steel and Nickel Alloy wire in just about any special shape you may require.

Drawn Alloy Wire Shapes provide other advantages in addition to reduced costs. Product quality and performance are also improved. The drawn wire insures uniformity of cross-section and a smooth, flaw-free surface.

Send today for information on Alloy Special Wire Shapes — and for our Nickel Alloy and Stainless Steel Properties Charts . . .



ALLOY METAL WIRE DIVISION

HKP H. K. PORTER COMPANY, INC.
Prospect Park, Pennsylvania

For More Information Circle No. 564 on Inquiry Card—Page 17

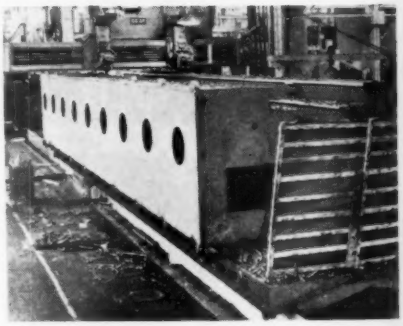
Resin Plugs Replace Asphalt Plugs, Cost Cut 67%



New England Telephone & Telegraph Co. uses gas pressurization in toll cables and in the cable exchange plant. Pressurization prevents moisture from entering the cable and, thereby, reduces maintenance costs. Cable ends were formerly "plugged" with hot asphalt to maintain the pressure seal. A switch to plugs made of cold setting Thiokol liquid polymer/epoxy resin compound cut costs by two-thirds.

Circle No. 77 on Inquiry Card—Page 17

Carbide Increases Tool Life, Machines Faster



A midwestern manufacturer had the problem of getting proper tooling to machine a C-1020 steel weldment weighing 55,300 pounds and measuring 72⅜" high, 95½" wide and 36 feet long. A Carmet CA-610 carbide tool when used with a Gray convertible openside planer was found to machine at a rate of 250 SFPM with a .078 feed and a depth of cut of ½". After running one piece it was found that it was not necessary to even touch up tools.

Circle No. 78 on Inquiry Card—Page 17

PLEASE USE INQUIRY CARD PAGE 17



You'll find, at Crucible, dozens of *prescription-made* cold rolled steels designed for special applications . . . steels for automotive stampings, business machine parts, saw blades, cutting dies, skates, springs and cutlery – to name just a few.

You'll find them in the widest possible variety – including carbon spring, alloy and stainless steels – in fact, in *any* ferrous analysis that can be cold rolled. And you're *sure* of *quality* at Crucible – the nation's leading producer of *special purpose steels* – for Crucible maintains *complete* control of production from ore to finished steel.

So when you need prompt delivery of *any* kind of cold rolled specialty steel *call Crucible.* Experienced Crucible metallurgists can help, too, in selecting the *best* steels for your job. And write for your free copy of Crucible's new 32-page booklet on cold rolled specialty steels. It's packed with useful data. *Crucible Steel Company of America, Henry W. Oliver Building, Pittsburgh 30, Pa.*

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

For More Information Circle No. 565 on Inquiry Card—Page 17

want better

- HEAT RESISTANCE
- ARC RESISTANCE
- STRENGTH & WEAR RESISTANCE
- STABILITY

in molded electrical parts?



Today's new Ace Hard Rubber compounds are far more than "just good insulators" in electrical-mechanical parts. Look at these representative values: Tensile strength to 10,000 psi, moisture absorption as low as 0.04%, power factor 0.006; arc resistance as high as 190; dielectric strength to 600 v/mil; surface resistance over 10^8 megohms; heat resistance to 300 deg. F. Compounds can be blended to give just the right combination of properties for each job...economically, too, because it's never necessary to "over-design." Practically any size and shape can be molded, even with complicated inserts. Machinable to close tolerances, with excellent dimensional stability. Why not check up on today's new compounds for your designs?



ACE® dielectrics:

High dielectric sheet and extruded shapes ideal for myriads of punched or machined parts.



Design hints covering wide variety of Ace hard rubber, Ace plastics, and rubber-plastic blends are available in 80-pg. Ace Handbook. Write for your copy today.

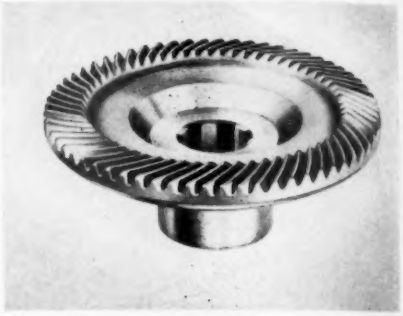


ACE rubber and plastic products

AMERICAN HARD RUBBER COMPANY
93 WORTH STREET • NEW YORK 13, N. Y.

For More Information Circle No. 566 on Inquiry Card—Page 17

Machinability Increased 25%, Tool Life Up 75%



A manufacturer of spiral gears for agricultural equipment cut costs sharply by switching to Aristoloy 4140 leaded steel from its non-leaded equivalent. Machining time time was cut 25% and, most important, tool life increased from 6-8 gears per tool grind to 11-14 pieces per grind. Also finish was sufficiently improved so that the noise factor of the gear in operation was eliminated.

Circle No. 79 on Inquiry Card—Page 17

Material Change Cuts Jig Building Time Over 50%



A buyer for an auto company found a way to drastically reduce the cost of jigs used for spot welding automobile bodies. One jig used to exert pressure across the formed top of a station wagon cost the equivalent of 45-80 man-hours of labor when it was made from steel. By switching to a jig made of epoxy resins, the cost was reduced to the equivalent of 21 man-hours of labor. The plastic jig has the added advantage of being resilient enough to prevent scarring or denting sheet metal when it is mounted for spot welding.

Circle No. 80 on Inquiry Card—Page 17

Dimensional Accuracy and Better Finishes...Specify

ALUMINUM Roll Formed Shapes from REYNOLDS

Rolling from coil stock permits savings that are impossible when working from flat sheet.

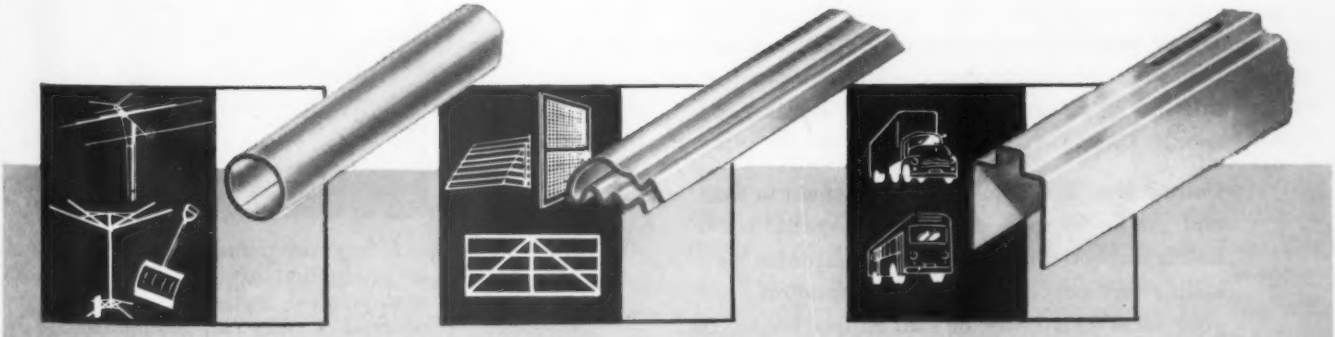
Therefore if you are fabricating a complex shape from flat sheet, or if you require a shape in long lengths, it will pay to switch to aluminum roll formed shapes from Reynolds.

Reynolds roll forming can produce a wide range of easily fabricated shapes that aid in design flexibility. Closer tolerances on Reynolds roll formed shapes mean dimensional accuracy; better as-fabricated finishes often mean a more attractive product without additional finishing operations.

Reynolds sizable investment in roll forming machines and tooling, Reynolds technical advisory service and Reynolds quality control from mine to finished product assure prompt, economical production of quality roll formed shapes. For details, contact the Reynolds office listed under "Aluminum" in your classified telephone directory or write *Reynolds Aluminum Fabricating Service, 2056 South Ninth St., Louisville 1, Ky.*

Write for your free copy of the 8-page brochure, "Aluminum Roll Formed Shapes by Reynolds."

See "Mister Peepers", starring Wally Cox, Sundays on NBC-TV



High strength and superior finish of aluminum roll formed tubing pays off in TV antenna, snow shovel handles, clothes dryers and many other products.

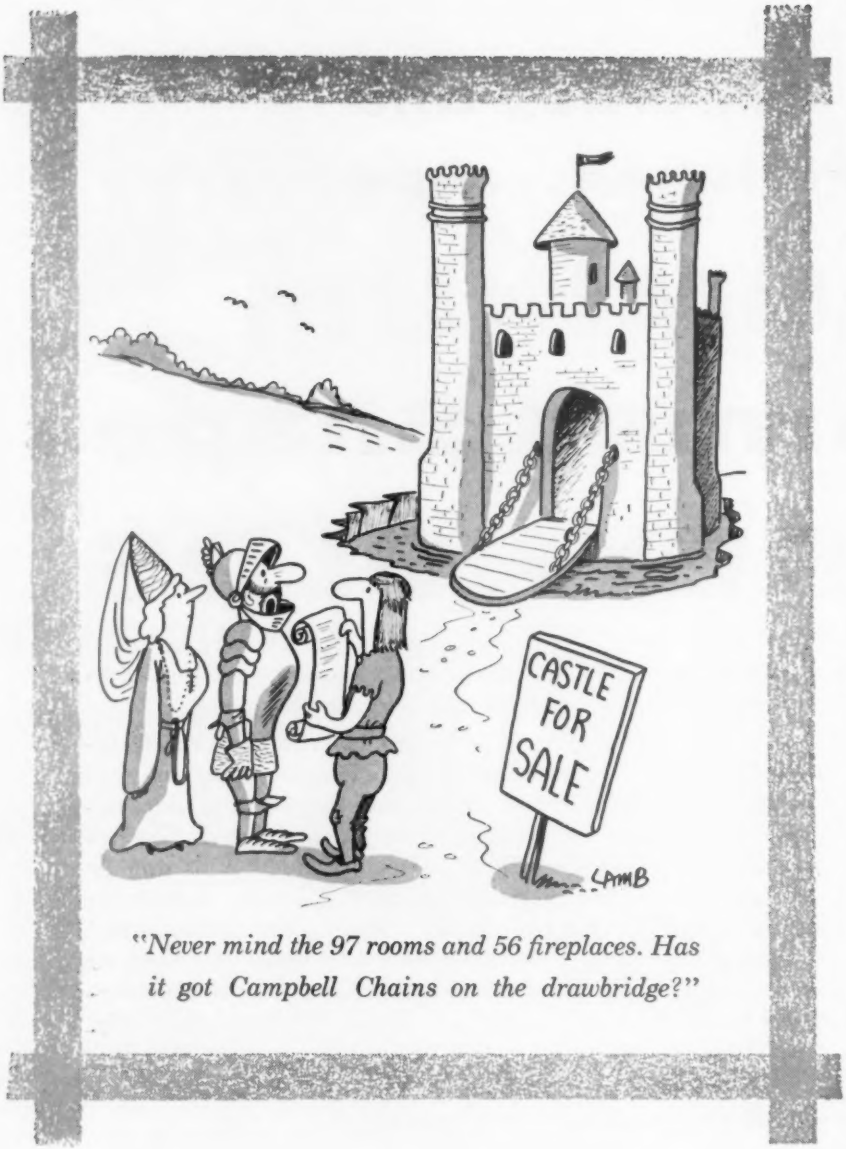
Parts for window screens, farm gates, car ports, awnings and other building products are economically produced with aluminum roll formed shapes.

Many complex truck and trailer framing members, bus trim strips and other parts are easily fabricated with aluminum roll formed shapes.

FABRICATING SERVICE

ROLL SHAPING • TUBE BENDING • WELDING • BRAZING • FINISHING

For More Information Circle No. 568 on Inquiry Card—Page 17



"Never mind the 97 rooms and 56 fireplaces. Has it got Campbell Chains on the drawbridge?"

Never take chain for granted. Wherever you use it—for maintenance . . . on the production line . . . or on original equipment, be sure you specify CAMPBELL CHAIN.

Campbell makes safe, dependable chain in sizes and grades to meet every requirement. Each link is inspected individually to guarantee long lasting service. Get complete information from your local distributor or mill supply house. If your chain problem is unusual, write direct.

CAMPBELL CHAIN *Company*

CAMPBELL CHAIN

Main Office, York, Pa. • West Burlington, Iowa
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Makers of Famous CAMPBELL *Lug-Reinforced* TIRE CHAINS

For More Information Circle No. 569 on Inquiry Card—Page 17

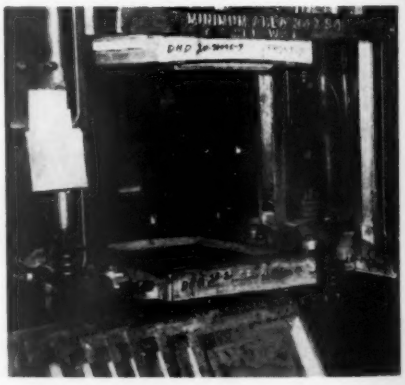
Carbide Pins Increase Buffing Output 20%, Cut Downtime 30%



Dexter Lock Company of Grand Rapids, Mich. uses pins to hold brass strike plates while they are being buffed. Formerly, steel pins were used. Wear from buffing compound and buffing wheel striking the steel pins made replacement necessary every 24 hours. The company switched to Carboloy carbide pins. They've been in service three years and haven't had to be replaced yet. Buffing rate has been stepped up 20% and machine downtime has been reduced 30% as a result.

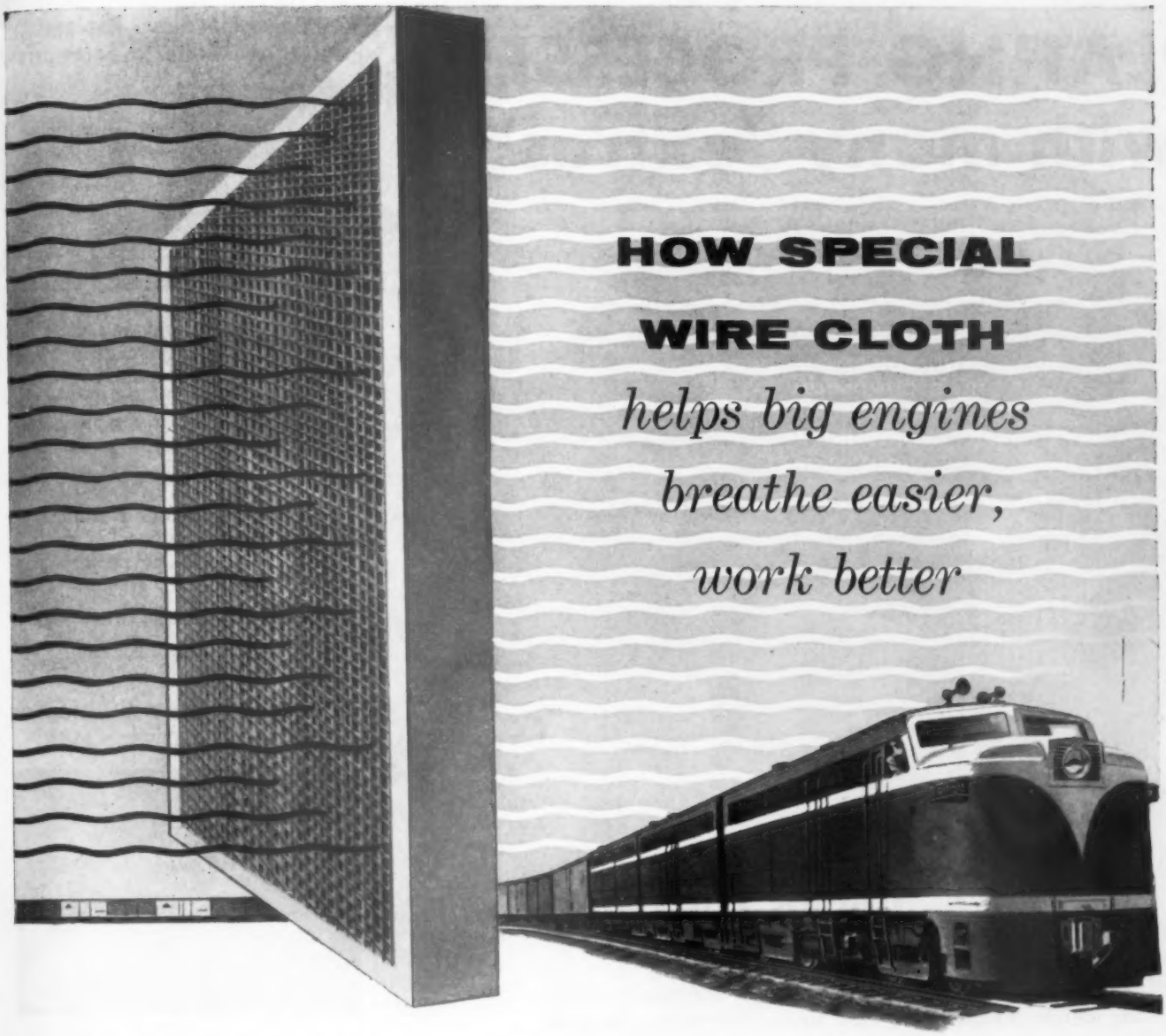
Circle No. 81 on Inquiry Card—Page 17

Cost of Stamping Dies Cut 80% with Epoxy Plastics



A large manufacturer specializing in production of stampings of aluminum, steel, and stainless steel discovered a way to reduce tooling costs by 80% and speed up delivery 70%. The answer is buying dies made of epoxy plastic compounds. Supplier was Ren-ite Plastics, Lansing, Mich. So far, the company has used 18 of these Ren-ite dies, and they have stamped out more than 18,000 auto body parts. Quality of these parts is every bit as good as it would have been were they made with steel dies.

Circle No. 82 on Inquiry Card—Page 17
For More Information Circle No. 570 on Inquiry Card—Page 17→



HOW SPECIAL WIRE CLOTH *helps big engines breathe easier, work better*

● Keeping harmful grit and dirt out of the lungs of big engines, like locomotive diesels, is no small problem. Determined to do the job better than ever before, a leading filter manufacturer turned to the *Reynolds Wire Division* of National-Standard for a special wire cloth that would trap all the dirt and still let such engines breathe the terrific volume of air they need.

No simple assignment this, for it took months of concentrated development work—not only to develop the *kind* of wire cloth that would do the job, but also to find out *how best* to produce it. It had to be slit into narrow widths, with special lock wires to prevent raveling. It had to withstand a patented method of severe forming and crimping without compacting. And despite the special construction and narrow slitting, it had to be furnished in extra large continuous rolls. All were tough problems to lick!

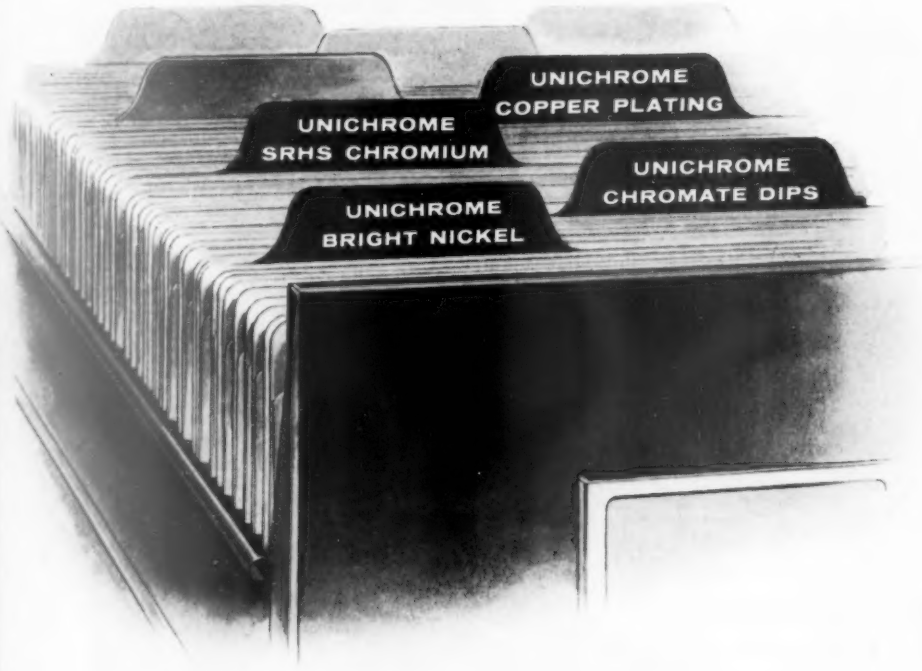
The *ability* to lick a tough problem in wire cloth is one thing. The *willingness* to do it is quite another. You get *both* at Reynolds Wire. But, problem or no problem, short orders or large volume production, you too will find it pays to turn to Reynolds. Try us and see.

NS NATIONAL-STANDARD Company MILES, MICHIGAN

NATIONAL-STANDARD COMPANY • NILES, MICHIGAN
Tire Wire, Stainless, Fabricated Braids and Tape
ATHENIA STEEL DIVISION • CLIFTON, N. J.
Flat, High Carbon, Cold Rolled Spring Steel
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Special Machinery for Metal Decorating
WORCESTER WIRE WORKS DIVISION • WORCESTER, MASS.
Round and Shaped Steel Wire, Small Sizes

For More Information Circle No. 571 on Inquiry Card—Page 17

PLATING PROCESSES with many "extras"



...provided by UNITED CHROMIUM

When you need processes for plating or chemically finishing metals, it pays to see what United Chromium has to fit the requirements. You stand to gain more economies, greater freedom from troubles, and a better looking finish.

For example:

Unichrome SRHS* Chromium Solutions can cut plating time, reduce chromium salts consumption, increase capacity of equipment.

Unichrome Copper Plating Process can often help eliminate buffing, also avoid costs of cyanide disposal.

Unichrome Chromate-dipping Compounds can lead to economies in production and material consumption, as well as give a quality finish.

**Trade Mark*

Detailed information is available to help you save on finishing expense. Write us about your specific needs.

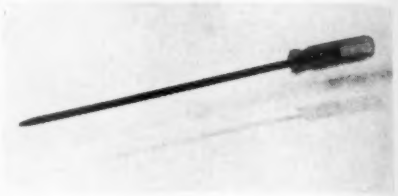
UNICHROME Trade Mark **METALLIC and ORGANIC FINISHES... EQUIPMENT**

UNITED CHROMIUM, INCORPORATED
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In Canada: United Chromium Limited, Toronto 1, Ont.

For More Information Circle No. 572 on Inquiry Card—Page 17

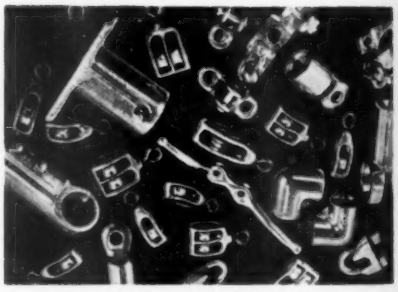
Polyester Glass Replaces Vulcanized Fibre in Screwdriver



A manufacturer of insulated screwdrivers used for such electronic work as adjusting coils and condensers recently made a switch in materials. Vulcanized fibre was formerly used as the insulating material in the screwdriver blade; now Taylor polyester glass rod is used. The new material costs no more but is available in a variety of colors (giving greater saleability to the finished product), and is stronger and will not take a permanent set.

Circle No. 83 on Inquiry Card—Page 17

Aluminum Alloy Eliminates Heat Treating Cost



Littlestown Hardware & Foundry Co. of Littlestown, Pa., casts a variety of aluminum alloy products ranging from awning hardware to municipal street signs. It has found that Tenzaloy, an aluminum alloy of the aluminum-zinc-magnesium type produced by Federated Metals Division of American Smelting and Refining Co., will age at room temperature. Thus, without any additional cost, it gets mechanical properties normally obtained by solution treating, quenching, and artificial aging. Tenzaloy that has been cast in sand molds gives tensile strength of 35,000 psi, yield strength of 25,000 psi, and a Brinell hardness of 74 after 10-14 days of aging at room temperature. Under the same conditions, permanent mold Tenzaloy has a tensile strength of 40,000 psi, yield strength of 27,000 psi and a Brinell hardness of 74.

Circle No. 84 on Inquiry Card—Page 17

For More Information Circle No. 573 on Inquiry Card—Page 17→

Check your Stainless Steel requirements against this table

...you'll find what you want

If you buy Stainless Steel, one glance at this table will tell you that United States Steel is your best single source of supply for Stainless.

Check grades . . . shapes . . . sizes . . . finishes. Nowhere else will you find a wider selection to meet your fabricating and end use requirements. And both sales and producing facilities are convenient to you, no matter where you are located.

Whatever your requirements, you are sure of getting, in USS Stainless Steel, a service-tested material that will give the performance you want in fabrication and in end use.

Call United States Steel first when you need Stainless Steel.

SPOT SERVICE ON STAINLESS STEEL. For prompt service on your immediate requirements, call your warehouse distributor who handles USS Stainless Steel. He can offer you fast delivery.

PRODUCT	FINISHES	WIDTHS	LENGTHS	THICKNESSES	SIZES
SHEETS	No. 1—No. 2D No. 2B—No. 4 No. 3 No. 6—No. 7	from 24" to 72"	up to 196" in cut lengths Also available in coils up to 48" (only in unpolished finishes 2B and 2D)	from .014" to .1874"	
PLATES	HR—HRA—HRA&P Polished	over 10" to 132"	up to 432"	.1875" and heavier	
ANGLES	HRA&P		up to 360'	from ⅛" to 1⅛"	from ¾" x ¾" to 8" x 8"
BARS Rounds, Squares, Octagons, Hexagons Special Sections	HR—HRA—HRA&P CD—RT CF—CG & Polished (Rounds only) (Rolled or Extruded)		up to 360'		from 5/16" to 9"
SEMI-FINISHED Blooms, Billets		from 4" to 15⅞"		from 4" to 15⅞"	
FLATS	HR—HRA—HRA&P CD	from ⅛" to 10"	up to 360'	from ⅛" to 2⅛"	
WIRE Coils and Straight and Cut	Copper, Lead, Tin, Galvanized, Wax, Bright, Oil, Soap, Lime		from 12' to 22'		from .008 to .500
COLD-ROLLED STRIP Coils and Straight and Cut	No. 1, No. 2	from 3/16" to 23 15/16"	from 12' to 20'	from .010" to .1874"	
TUBING	Standard Pickle, Grit No.'s 80, 120, 180, 320 and rouge polishing		Comparable to other carbon, alloy cold-drawn tubing		O. D. SIZES from ⅛" to 9"

GRADES

A.I.S.I. TYPE	USS DESIGNATION
300	**SERIES**
301	USS 17-7
302	USS 18-8
302B	
303	USS 18-8FM
303Se	USS 18-8FMSe
304	USS 18-8S
304L	USS 18-8S C.03 Max.
305	USS 18-8FS
308	USS 20-10S
309	USS 25-12
309S	USS 25-12S
310	USS 25-20
310S	USS 25-20S
314	USS 25-20SI
316	USS 18-8Mo
316L	USS 18-8Mo C.03 Max.
317	USS 19-9Mo USS 18-8MoCbTa
321	USS 18-8Ti
347	USS 18-8Cb USS-18-8CbTa USS 12-12
400	**SERIES**
403	USS 12 Turbine
405	USS 12 AL
410	USS 12
416	USS 12FM
416Se	USS 12FMSe
420 430 430F 430T 431	USS 17
442 446	USS 27
500	**SERIES**
	USS 5Mo USS 5SMo

UNITED STATES STEEL CORPORATION, PITTSBURGH · AMERICAN STEEL & WIRE DIVISION, CLEVELAND · COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
NATIONAL TUBE DIVISION, PITTSBURGH · TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. · UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

5-842

UNITED STATES STEEL



The above Knurled Head Machine Screw represents another difficult cold heading job successfully accomplished at lower cost per unit by Keystone "Special Processed" Cold Heading Wire.

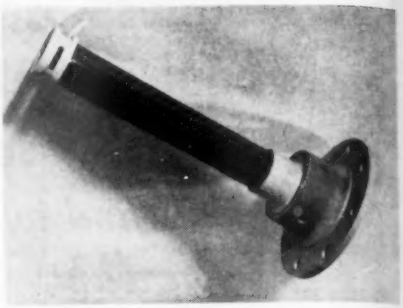
The superior grain flow characteristics of "Special Processed" Wire provide the desired upsetting and die forming qualities necessary to form the thin head section without cracking. The structural soundness and uniformity of "Special Processed" Wire further proved itself by trouble-free machine operation, longer die life and a finished product of the highest quality.

On your next recessed head or other difficult cold heading job, try "Special Processed" Wire. See your Keystone representative or write for more information.

Keystone Steel & Wire Company
Peoria 7, Illinois
Industrial Wire Specialists

For More Information Circle No. 574 on Inquiry Card—Page 17

Plastic Replaces Aluminum Tube in Aircraft Gage



A manufacturer of aircraft fuel tank gage units now uses Taylor laminated plastic tubing ¾" O. D. with a wall thickness of but 3/64". Formerly, aluminum tubing was used for the same application. With the plastic tubing, it was possible to get reportedly superior resistance to the corrosive action of the fuel, and lighter weight (in aircraft this is critically important). The new material also meets all requirements for electrical insulating properties.

Circle No. 85 on Inquiry Card—Page 17

Adhesive Enables Operators to Double Their Production



Kaiser Metal Products Co., Bristol, Pa., uses adhesives to bond sound damping materials to the doors of sinks and cabinets they manufacture. Since assembly line procedures make oil (for metal protection) and sparks from welding machines a hazard, the adhesive must be oil-absorbent and fireproof, in addition to having high immediate wet strength. Use of Minnesota Mining and Manufacturing's EC-404 has enabled operators to move from a normal production of 233 pieces per hour to between 400 and 600 pieces an hour, without danger from the hazards mentioned above.

Circle No. 86 on Inquiry Card—Page 17



Switch in Design Cuts Cost of Crimping Tool Part 50%

The buyer of a part for a pneumatic tool for crimping solderless electrical connectors to wire and cable worked with his supplier, Hartford Machine Screw Co., on a lower-cost design. With the help of Hartford's engineers, he achieved a 50% cost reduction. Originally the part was to be made by machining from a single solid forging. Redesigning the part so that it could be made from two stampings and two machined parts welded and brazed together with six bushings drastically cut machining time and cost.

CIRCLE NO. 87 ON INQUIRY CARD—PAGE 17

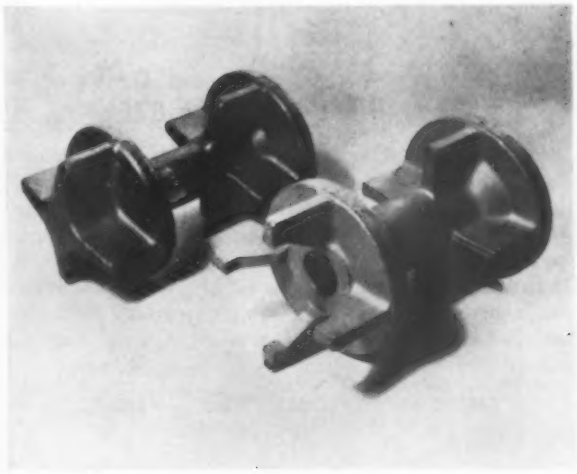




Buying One-Piece Design Cuts Costs by 48%

One manufacturer used to fabricate a dirt plow hitch for a tractor out of several pieces with resultant heavy machining and assembly costs. By switching to a steel casting, it was able to combine the coulter housing with the hitch in a single piece. The result was a 48% direct cost saving. Weight was cut from 14.3 pounds to 13.2 pounds. Final assembly was simplified through incorporation of bolt holes and better alignment of various surfaces.

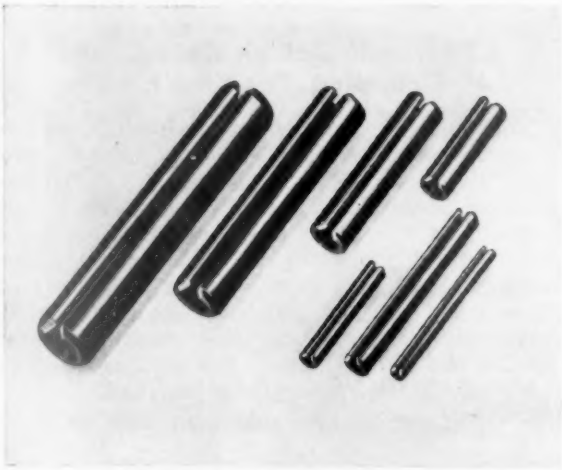
CIRCLE NO. 88 ON INQUIRY CARD—PAGE 17



Shell Molded Casting Replaces Forging, Costs Slashed

One manufacturer recently converted one of its component parts from a steel forging to a shell molded casting. Eliminated of excess weight, casting of contours closer to the finished form, and coring out of a center hole, reduced the weight from 11 pounds to 8½ pounds. Because of the 23% reduction in weight and elimination of excess metal, machining cost was cut 37%. In addition, the casting costs 51½% less than the forging it replaces.

CIRCLE NO. 89 ON INQUIRY CARD—PAGE 17



Rollpins Replace Taper Pins; Save $10,000 per Year

Between 500,000 and 750,000 taper pins had been used per year by R. C. Allen Business Machines, Inc., Grand Rapids, Mich., for assembly of component parts. Using Rollpins, the company gained needed space taken up by taper pins protruding from bushings, and speeded assembly. In addition, the Rollpins cost about 25% of what taper pins cost. As a result of tighter assembly and faster production with the flush-mounted Rollpins, R. C. Allen has realized savings of $10,000 per year through the switch.

CIRCLE NO. 90 ON INQUIRY CARD—PAGE 17

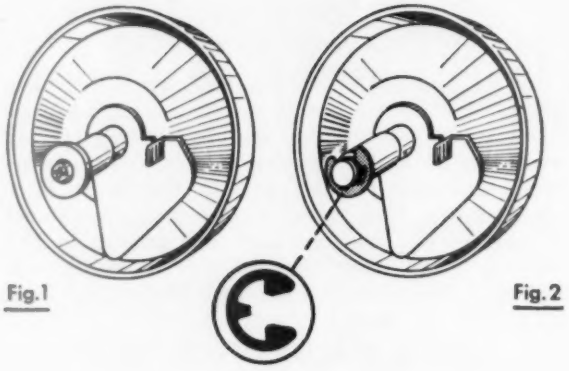


Fig. 1 Fig. 2

Retaining Ring Saves $12.69/M

Ansco of Binghampton, N. Y. used retaining rings in its Anscoflex II camera to slash costs and improve quality. In the old design, self-tapping screw and washer are used to secure camera winding knob. To remove knob, it is necessary to disassemble entire camera to get at screw. In new design, a Waldes Truarc ring replaces screw and washer. Since it is applied radially, it is possible to remove winding knob without major disassembly, cutting repair time. Use of rings permitted labor saving of $10.40 per 1000 units and material saving of $2.29 per 1000 units.

CIRCLE NO. 91 ON INQUIRY CARD—PAGE 17



Change on Purchased Drive Gear Reduces Cost 82%

A manufacturer of home ice cream freezers found it could lower the cost of its drive gear by 82% when it switched from a machined part to powdered metal. If the part weren't made from powdered metal, it would be necessary to machine it in two pieces and then assemble. With powdered metal, it is formed in a single pressing and the only secondary operation is machining the spiral oil groove located on the outer hub surface.

CIRCLE NO. 92 ON INQUIRY CARD—PAGE 17



T-V makers keep a Clear Picture of Assembly Costs... with AMERICAN PHILLIPS Screws

Top output . . . no costly cabinetwork or parts slashed or smashed by slipping screwdrivers . . . no workers out with gashed hands ...those are some of the advantages of American Phillips Fastening which combine to give TV and radio makers a strong signal that assembly costs can be cut as much as 50%.

And just as Phillips Screws are tops in modern fasteners, so American has been a top producer ever since it introduced the Phillips Recessed Head to industry. That's why so many manufacturers of leading products in every line rely on American as their No. 1 Phillips supplier...for they know that American's capacity and standards of quality will keep their assembly lines moving at top speed, day in, day out. *Your* experience will be exactly the same . . . *try it and see.*

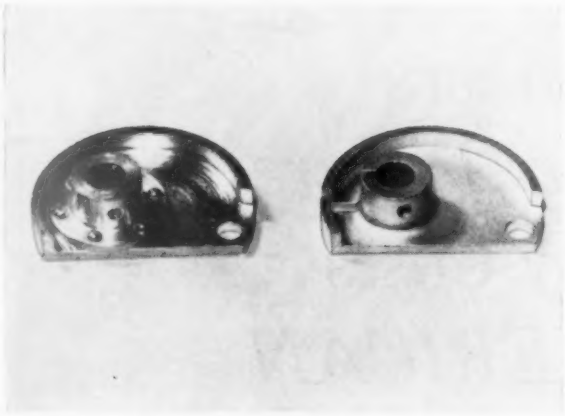
✕ *marks the spot. . . the mark of extra quality*

AMERICAN SCREW CO.

PHILLIPS HEADquarters
WILLIMANTIC, CONNECTICUT

Plants at Willimantic, Conn. and at Norristown, Pa.
Warehouse and office at Chicago
Office, Detroit, Michigan

For More Information Circle No. 579 on Inquiry Card—Page 17



Investment Casting Cuts Valve Cam Costs 86%

A cam used in an aircraft air conditioning system valve by Stratos Div., Fairchild Engine & Airplane Corp., was originally a 2-piece assembly. Its main segment was of 4140 steel turned from bar stock; its hub of hard brass turned from stock and broached. To assemble, the two pieces were riveted. The cam is now produced for Stratos by investment casting in one-piece, including the hub, by National Precision Casting Corp. Shaping operations and riveting, previously required, have been eliminated to slash cost some 86%.

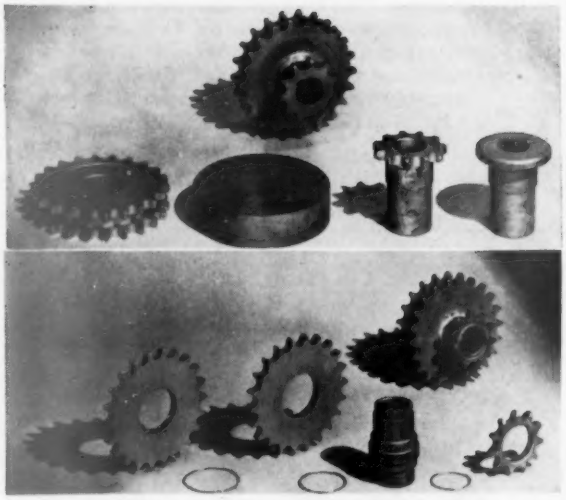
CIRCLE NO. 93 ON INQUIRY CARD—PAGE 17



Switch to Forged Ring Cuts Machine Time

General Electric Co. used to make rings for naval gun directors from weldments consisting of five rings cut from steel plate for each assembly. By switching to forgings, a one-piece design is possible. G. E. now uses forged rings rolled to shape by Standard Steel Works Division of Baldwin-Lima-Hamilton Corp. The result is greatly reduced cost arising from a cut in machining and fabrication time and an increase in quality.

CIRCLE NO. 94 ON INQUIRY CARD—PAGE 17



Stampings Plus Brazing Equal Low Cost

Massey-Harris Co., Ltd., of Canada, once fabricated triple sprockets, used on a self-propelled combine, by boring, turning and hobbing from bar stock and welding by hand to the hub. Procedure was time-consuming and costly. Now the sprockets are blanked from ½" SAE 1045, plate, bored and hobbed in groups, and are then induction-brazed to the hubs using a low temperature silver brazing alloy manufactured by Handy & Harman. It only takes 30 seconds to set-up and braze the large sprockets and 17 seconds for the small sprocket. This results in much lower over-all costs.

CIRCLE NO. 95 ON INQUIRY CARD—PAGE 17

AMPHENOL builds for the ELECTRONICS INDUSTRY

The quantity production of quality components for electronics is the object and the success of AMPHENOL. The variety of our expanding line of components reflects both the new needs of electronics and the growing demand for AMPHENOL quality in every specification of important connectors and cable.



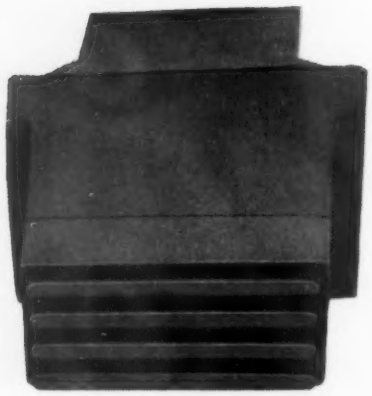
- AN CONNECTORS
- RF CONNECTORS
- HERMETIC SEAL RECEPTACLES
- MINIATURE AN-TYPE CONNECTORS
- SUBMINAX RF CONNECTORS
- BLUE RIBBON CONNECTORS
- MINIATURE RACK & PANEL CONNECTORS
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- CABLE ASSEMBLIES & HARNESSES
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Redesign of Molded Rubber Part Saves User Up to 60%

A suggestion by Acushnet Process Company for redesign of a foot-switch button used by a major electrical appliance manufacturer, resulted in a savings of 60% for the user. The design was changed slightly to make the part more practical for the molding process. As originally designed, parts would have been produced with a rejection rate of 65%. This would have increased the cost of finished units considerably. With redesign, parts were produced with about a 2% rejection

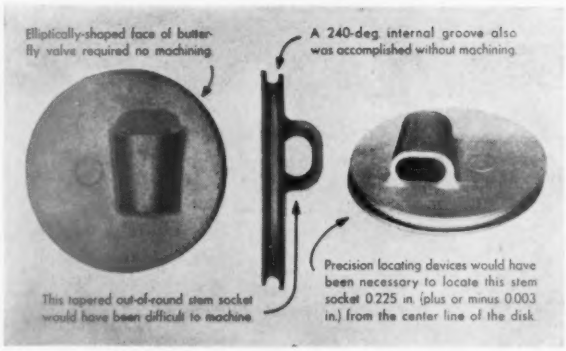
CIRCLE NO. 96 ON INQUIRY CARD—PAGE 17



Castings Valued at $2000 Salvaged With $50 Wire Inserts

Franklin Machine Products Co., West Trenton, N. J., received 40 cylindrical aluminum castings incorrectly heat-treated by the foundry. Drilling and tapping of holes at each end resulted in threads either stripping or chipping off, making final assembly impossible. Using about $50 worth of stainless steel wire thread inserts, tap and tool made by the Heli-Coil Corp., it was possible to salvage all of the castings, valued at $2000. Damaged threads were drilled out and new threads tapped to accommodate inserts.

CIRCLE NO. 97 ON INQUIRY CARD—PAGE 17

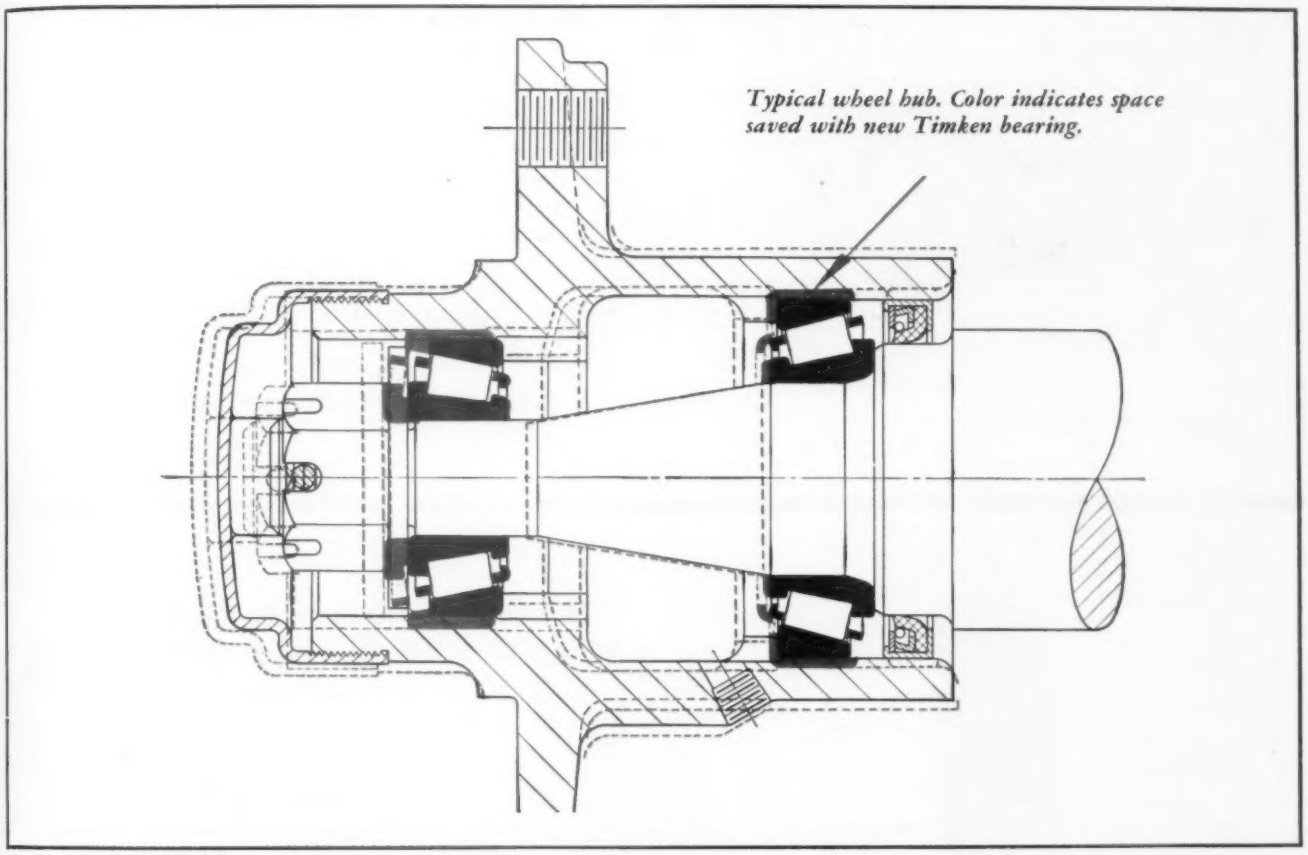


Investment Casting Eliminates Three Costly Operations

Tri-Clover Division of Ladish Company, manufacturer of an intricate dairy valve, saved the cost of some expensive machine tools and eliminated several machining operations by having one of the parts produced by the Haynes investment-casting process. To produce the part, a butterfly valve disk, in the necessary elliptical shape would have involved the purchase of costly contour machining equipment. Other advantages gained by using a casting are shown in the accompanying picture.

CIRCLE NO. 98 ON INQUIRY CARD—PAGE 17

Three new TIMKEN® bearings cost less, permit savings in related parts, too



Typical wheel hub. Color indicates space saved with new Timken bearing.

New capacity-packed bearings take up less space than previous designs of same bore sizes

THREE new Timken® tapered roller bearings are now available in bore sizes of ¾″, 1¼″ and 1⅜″. And they cost less than previous bearings of the same bore sizes. Because they take up less space and weigh less, they permit application designs that save in related parts, too. And never has so much bearing capacity been packed into so little space.

These new Timken bearings offer exciting opportunities for savings through redesign of present tapered roller bearing applications. One example is shown in the above diagram of a typical wheel hub. Seals can be smaller and cheaper, hubs can require less metal and less machining, spindles can be made shorter and less costly to machine. All these savings are in addition to the lower cost of the bearings themselves.

Many engineers have already taken advantage of these possibilities and well over 1,000,000 of the new bearings are proving themselves in automobile front wheels and other applications.

The new Timken bearings also make it possible for you to enjoy the advantages of tapered roller bearings in many new applications—and at minimum cost.

Auxiliary parts for use with the new Timken bearings are available from the Timken Company and major closure manufacturers. For full information on the new low-cost Timken bearings and help in designing them into your product, write today to The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

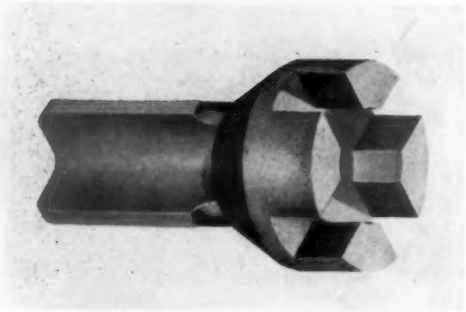
TIMKEN® ... your number 1 bearing **VALUE**

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NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ↓ AND THRUST →◎← LOADS OR ANY COMBINATION →✳←

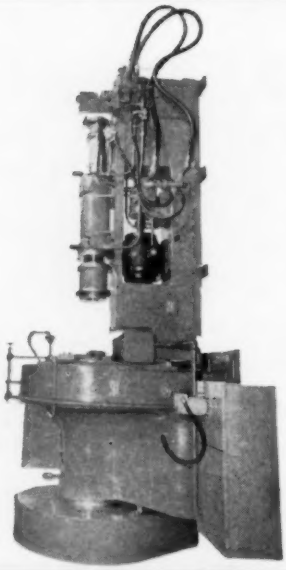
For More Information Circle No. 581 on Inquiry Card—Page 17



Investment Casting Reduces Cost of Contoured Valve 53%

Using its method of investment casting, the Microcast Division of Austenal Laboratories, New York City, has greatly reduced cost and machining time in the production of contoured valves for proportioning pumps. The valve is made in four alloys: Monel, Hastalloy C, 440C, and 316. When it was made from a sand casting, extensive final machining was required. As an investment casting, finishing is limited to light grinding on the periphery of the valve. The result: fewer rejects and a cost reduction of 53%.

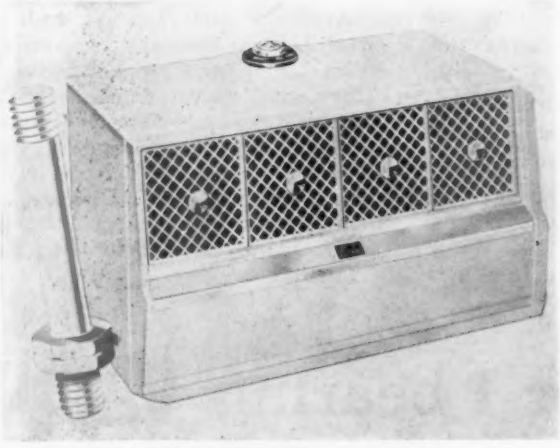
CIRCLE NO. 99 ON INQUIRY CARD—PAGE 17



Change to Meehanite Castings Brings Cost Down, Improves Product

By substituting Meehanite castings for grey iron castings in its line of rotary swaging machines, the Fenn Manufacturing Company was able to reduce manufacturing costs and improve its product. For example: main swager frames were formerly cast iron. Casting quality was poor, causing machining difficulties and rejections of frames, with consequent delays in production. Switching to Meehanite frames improved casting quality, eliminated machining troubles and raised tensile and fatigue strength of the frames.

CIRCLE NO. 100 ON INQUIRY CARD—PAGE 17



Redesigned, Cold-Formed Part Saves $14,624 A Year

Townsend Co., New Brighton, Pa., saved Servel, Inc. $14,624 a year by redesigning a small part used in an electric room air conditioner. Four of these parts mount the compressor and hold it in position. This part was formerly cut from hexagon bars and tapped to receive a bolt which was held in place by a lock washer. Townsend redesigned the part in one piece by cold forming. The threads are rolled. The bolt has been replaced by a nut and a lock washer in the assembly. The result is that scrap loss has been cut to almost zero and new part is stronger.

CIRCLE NO. 101 ON INQUIRY CARD—PAGE 17



A "STOCK" REPORT

that's always profitable



Once more, Lamson offers a service to help you in purchasing bolts & nuts.

This Stock List is a monthly compilation of availabilities of the different types and styles of Phillips and slotted machine and tapping screws.

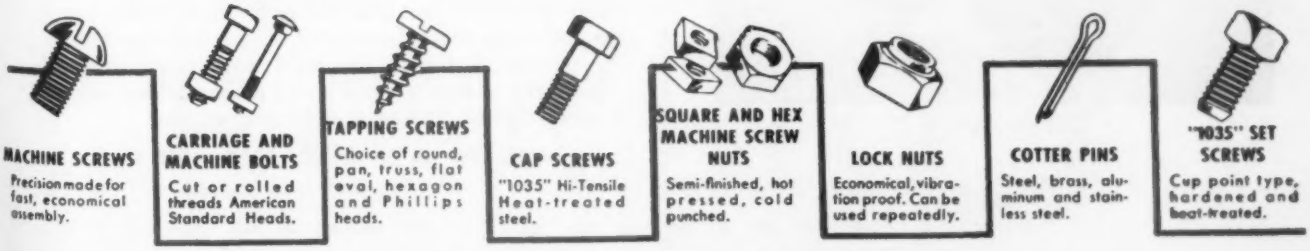
If your requirements fall within this group, you will find it profitable in terms of certain shipment, fast delivery, advantageous shipping costs and convenience, to request this "Stock Report" from Lamson & Sessions. With this method of complete stock listing we are, in fact, your warehouse inventory of fasteners at no cost to you.

***Regular Inventory—Not Surplus!**

This stock list, printed in an easy-to-file size, is yours AT NO COST. It will be sent each month simply by requesting it. Write today for your monthly "Stock Report".

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MACHINE SCREWS Precision made for fast, economical assembly.

CARRIAGE AND MACHINE BOLTS Cut or rolled threads American Standard Heads.

TAPPING SCREWS Choice of round, pan, truss, flat oval, hexagon and Phillips heads.

CAP SCREWS "1035" Hi-Tensile Heat-treated steel.

SQUARE AND HEX MACHINE SCREW NUTS Semi-finished, hot pressed, cold punched.

LOCK NUTS Economical, vibration proof. Can be used repeatedly.

COTTER PINS Steel, brass, aluminum and stainless steel.

"1035" SET SCREWS Cup point type, hardened and heat-treated.

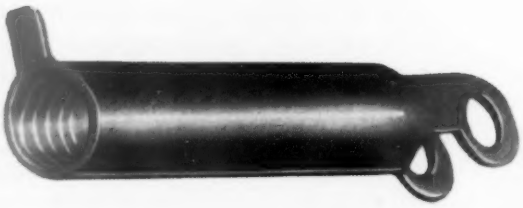
For More Information Circle No. 582 on Inquiry Card—Page 17



Special Locknuts Cost Less, Faster to Assemble

Underwood Corporation saves $1.50 for each 100 Flexloc locknuts it uses in assembling its new 150 Model standard typewriters. It used to use jam nuts and split nuts with a binding screw. It was found that the Flexloc nuts, which have a self-locking action at any position on the bolt, are easier to assemble. In addition they can be adjusted more accurately and are not affected by vibration.

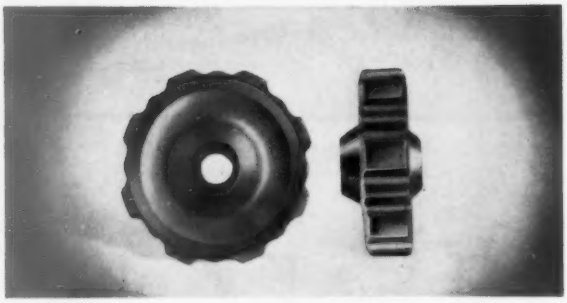
CIRCLE NO. 102 ON INQUIRY CARD—PAGE 17



Rolled Stamping Eliminates Machining Operations

The buyer of a tapped bushing for a leading manufacturer cut costs by changing to a lower-cost process proposed by a supplier, Plume & Atwood. He used to buy the bushing with drilling and tapping operations performed on it. These operations were eliminated by stamping the part. Now the part is made by a blanking, punching and thread coining operation, and then a rolling operation to form the bushing. Cost is but a fraction of what it formerly was.

CIRCLE NO. 103 ON INQUIRY CARD—PAGE 17



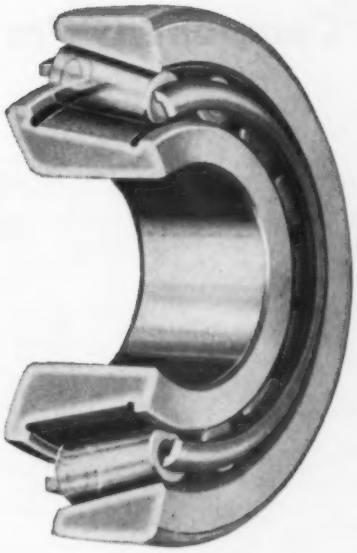
Brass Powder Reduces Both Part and Assembly Cost

When Linde Air Products Co. redesigned a valve wheel for manufacture as a brass powder part, it found that the cost of the wheel was not only cut 25% but a 50% saving in assembly cost was also effected. The valve wheel, which is used for pressure control of gases in welding and cutting equipment, was formerly made from extruded brass stock fabricated on a screw machine. In powdered brass, the part now requires no secondary operation, and it can be assembled with a simple press fit and a staking operation.

CIRCLE NO. 104 ON INQUIRY CARD—PAGE 17

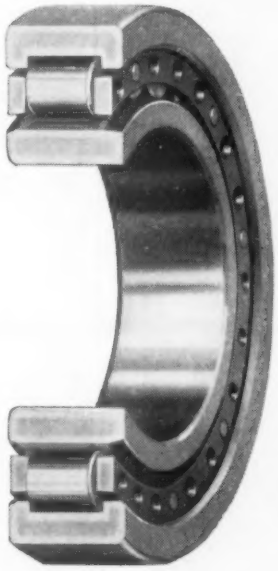
WHATEVER YOUR ROLLER BEARING APPLICATION

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Earthmovers, jet turbine engines, rolling mill equipment, truck axles—you name it! Bower builds a complete line of tapered, straight and journal roller bearings including a size and type to fit *your* product. What's more, these dependable bearings have *proved* themselves in virtually every conceivable type of application. Their built-in quality, skillful engineering and advanced design features provide such important bearing advantages as reduced wear, longer life and lower maintenance requirements. Let a Bower engineer give you full details on the complete Bower line.

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BOWER TAPERED ROLLER BEARINGS INCORPORATE ADVANCED SPHER-O-HONED DESIGN! Spherically generated roll heads and higher flange with larger, two-zone contact area reduce wear, improve roller alignment and virtually eliminate "end play." This helps hold adjustment and pre-load longer and better. Larger oil groove provides positive lubrication.

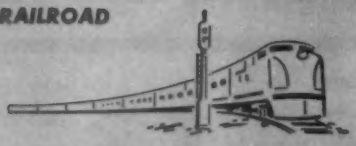
BOWER STRAIGHT ROLLER BEARINGS ARE BUILT TO CARRY MAXIMUM LOADS! Integral two-lip race increases rigidity—keeps rollers in proper alignment at all times. Steel cage allows free movement of rollers between races during normal operation. High-grade alloy-steel rollers and races are precision-ground for quieter, smoother operation.

A COMPLETE LINE OF TAPERED, STRAIGHT AND JOURNAL ROLLER BEARINGS
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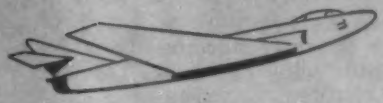
RAILROAD



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ROLLER BEARINGS

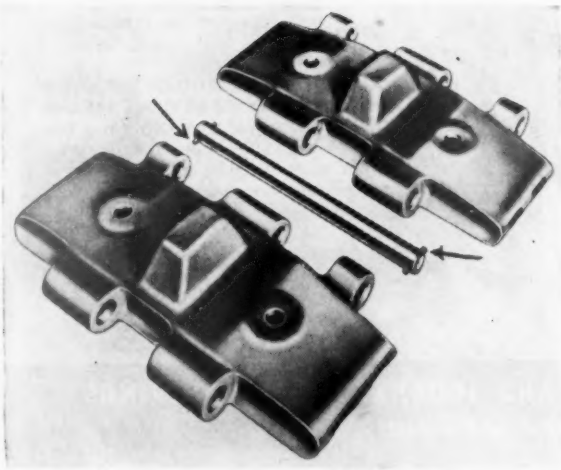
For More Information Circle No. 583 on Inquiry Card—Page 17



Cold Forging Stainless Eye Bolt Reduces Cost 40%

A well known manufacturer used large quantities of ⅜ by 2″ eye bolts made of 18-8 stainless steel. It used to manufacture them by a hot forming process. That was done until it was discovered that the eye bolt could be made 40% cheaper by the H. M. Harper Co., a specialist in cold forming tough alloy steels. So the part is now made by the cold heading process.

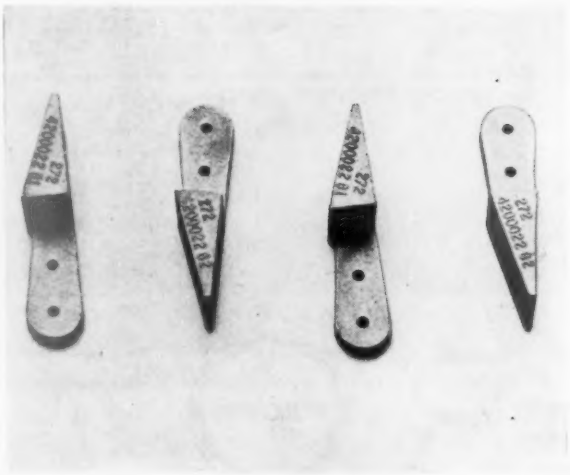
CIRCLE NO. 105 ON INQUIRY CARD—PAGE 17



Spring Pins Cut Assembly Time by One Hour

The Schield Bantam Co. manufactures truck-mounted power cranes and shovels. They used track shoes together for crawler equipment. The assembly job was time-consuming as the shoes had to be turned over to permit spreading of the cotter pins as retainers for the pins which link cotter pin legs. They now save 60 minutes on assembling the 36 shoes. For cotter pins they have substituted spring pins made by Elastic Stop Nut. The pins are simply tapped in with a hammer and the assembly need not be turned over.

CIRCLE NO. 106 ON INQUIRY CARD—PAGE 17



Investment-Cast Part Costs 50% Less

In making spacer blocks to support the skins at the leading edge of aircraft inboard flaps, the Glenn L. Martin Co. formerly machined the parts from 75S-T6 aluminum alloy bar stock. The cost was excessively high. When it substituted parts investment cast of 356-T6 aluminum alloy by National Precision Casting Corp., it slashed unit cost by 50%. This was chiefly due to elimination of numerous machining operations. But, even polishing was dispensed with.

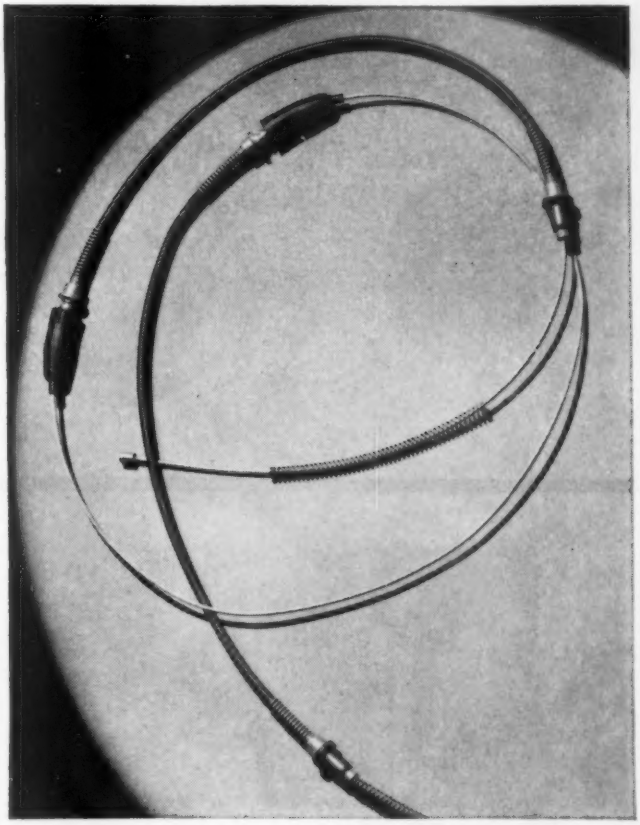
CIRCLE NO. 107 ON INQUIRY CARD—PAGE 17

Quality Springs are used for?

B _____



C _____



ANSWERS

A **CAR-PROOF.** You're looking at the wall of a striking new parking garage just erected in Chicago. American Steel & Wire furnished miles of stainless steel strand that runs continuously from the roof to the ground—where it is stretched tight by means of American Quality Springs. Appearance is breathtaking, and the novel construction prevents cars from rolling off the concrete slabs.

B **ONE LUNG GRAIN BIN.** When grain is stored, it *must* be adequately ventilated. American Steel & Wire produced thousands of these enormous steel "springs" that can withstand tremendous radial loads. In fact, they are laid on the floor of the bin, wrapped with AS&W Insect Screen, then covered with tons of wheat. Air can then be pumped through the tube, and the wheat stays dry and in good condition.

C **YOU USE IT ALMOST EVERY DAY.** It's not a terrifying medical instrument. Rather, this collection of cable, springs, clips and rubber boots is the entire parking brake assembly for a famous automobile. This entire unit was produced by American Steel & Wire.

●Remember, American Steel & Wire can supply *completely fabricated* wire and spring assemblies in quantity. Get in touch with your AS&W salesman . . . take advantage of American Steel & Wire quality—and *price*.

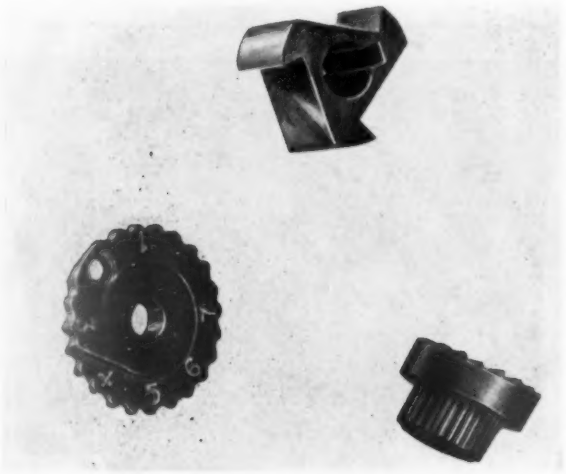
AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

USS AMERICAN QUALITY SPRINGS

UNITED STATES STEEL

For More Information Circle No. 585 on Inquiry Card—Page 17



Parts Costs Cut 73-90% With Powder Metallurgy

Yale & Towne recently established a powdered metal products division to serve both its own needs and its customers on a custom basis. Examples of savings possible include a face ratchet for a dictating machine. Sintering from iron-copper powder costs 73% less than machining from bar stock. Savings of 90% and 75% result when a telephone ringer silencer is made from bronze powder and a ratchet for a duplicating machine is made from iron-and-graphite powder pressed to a high density to permit heat treating to Rockwell C-60.

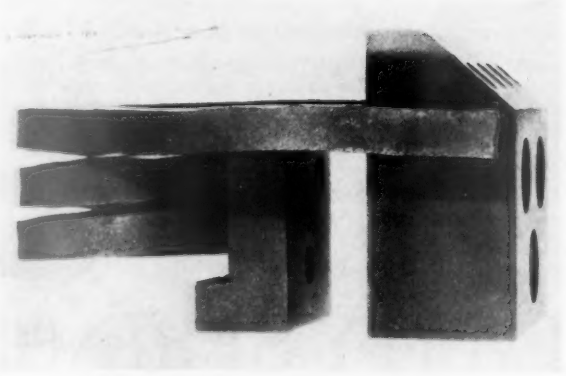
CIRCLE NO. 108 ON INQUIRY CARD—PAGE 17



Nickel Alloy Tubing Saves 80% of Cost of Snorkel Pen Part

W. A. Sheaffer Pen Co. cuts 80% of the cost of filling tubes in its Snorkel pens by making them from high nickel alloy tubing supplied by Superior Tube Co., instead of the 14K gold tubing originally used. The high alloy nickel tubing, .052" O. D., is just as corrosion resistant to writing fluids as the gold tubing and has the required rigidity. Use of the nickel tubing saves more than 25¢ on the cost of each filling tube.

CIRCLE NO. 109 ON INQUIRY CARD—PAGE 17



Extruded Copper Shape Lowers Costs; Reduces Machining Time

A part in the I-T-E Dual Selective Overcurrent Trip, an air circuit breaker, was being milled from a rectangular copper bar, 1 x 2 inches. The bar weighed 7¾ lbs per foot, and 1.8 lbs of scrap per foot was being generated to machine the part to its angular form. By switching to an extruded shape of Revere Copper and Brass Inc., substantial savings were realized. While weighing a little under 6 lbs per foot, and costing more per pound than the bar, the reduction in weight of the shape was enough to save 44¢ per foot, plus substantial savings in reduced machining and scrap handling.

CIRCLE NO. 110 ON INQUIRY CARD—PAGE 17

At last!

SPLIT V-RING PACKING

that's really **LEAKPROOF!**

LINEAR VEE-DAM RINGS

Labyrinth flow and lateral leakage are stopped by LINEAR'S uniquely designed, revolutionary VEE-DAM RINGS. Installation of these trouble-saving, long-lasting packings is virtually foolproof!



A STURDY RUBBER DAMS

faced in opposite directions in the grooved hinge area of each ring, hermetically seal off center groove sections when LINEAR VEE-DAM Rings are stacked together . . . eliminating all labyrinth flow.

U. S. Patent No. 2,665,151

B EXTERNAL ABUTMENTS

on the outside shoulder edge of the ring, staggered in relation to the internal dams, prevent lateral leakage, and provide stabilizing support.

LINEAR VEE-DAM Rings save on installation time because they don't require precise fitting. They provide a perfect seal with minimum gland load, giving lower friction against the ram and far longer life than ordinary packing.

Write or call for complete information on LINEAR *VEE-DAM Rings in a choice of rugged, fabric-reinforced synthetic elastomers, tailored to your requirements.*

"PERFECTLY ENGINEERED PACKINGS"

LINEAR

LINEAR, Inc., STATE ROAD & LEVICK ST., PHILA. 35, PA.

For More Information Circle No. 586 on Inquiry Card—Page 17



Change of Design Prevents Low Production and High Rejection

A miniature brake block made by Acushnet Process Company for a machine tool company was originally designed with attachment holes at a severe angle. The result was a complicated and costly mold design that promised low production and high rejections. The company agreed to let Acushnet engineers re-position the holds, which made for a high-speed simple mold and lower costs. The customer obtained a higher quality part at lower cost without sacrifice of performance or changing any sub-assemblies to which the parts are attached.

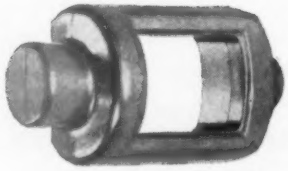
CIRCLE NO. 111 ON INQUIRY CARD—PAGE 17

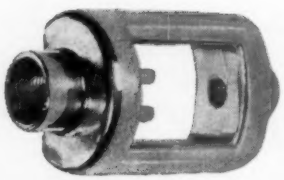


Substituting Kraft for Burlap Cuts Installation Time 90%

Flex-O-Lators Inc. of Carthage, Missouri is now supplying the furniture industry with a new roll edge binding that is easier to use in forming and bending and slashes user's installation time 90%. The company used to use burlap as a covering for this roll edging but, because of its erratic price fluctuations and increased difficulty in production, switched to an all-directional stretch kraft made by Cincinnati Industries Inc. The kraft saved time because it could be fed from continuous rolls, and be more easily slit and sewn.

CIRCLE NO. 112 ON INQUIRY CARD—PAGE 17





Use of Forging in Place Of Casting Brings 30% Saving

Using a forged brass part in place of a casting in equipment made by The Forreger Company has brought a 30% saving. The part is a pin yoke which is a vital component of a machine for the utilization of medical gases. Despite its smallness and fragility, the forging must resist constant pressure of at least 24 lbs.

CIRCLE NO. 113 ON INQUIRY CARD—PAGE 17

YOU CAN COUNT ON CONTINENTAL FOR EVERY FASTENER NEED!



Continental Produces Over 1,756,000 Styles and Sizes of Standard Screws Alone!

Continental offers you a greater selection than any other fastener producer

The vast inventory of fastenings offered by Continental is proof that you can always count on Continental for every fastener need. Whether your demands are for special or regular units, you will be assured of the best fastener for your job and of fast service, too.

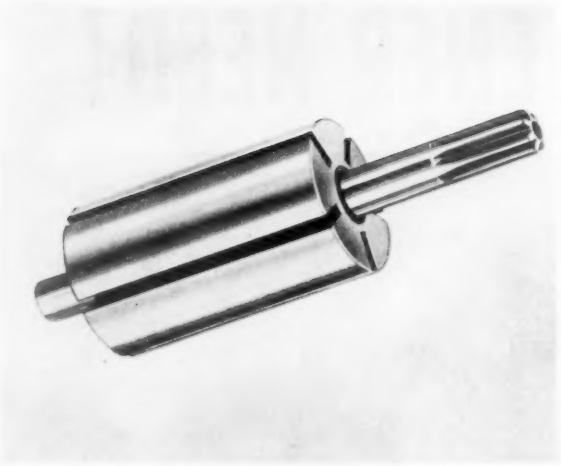
You will profit by putting this operation to work for you. The Continental Screw Company's design engineers and production specialists offer you the benefits of over 50 years experience and know-how.

Continental Screw Co.

Manufacturers of Holtite Fastenings

NEW BEDFORD, MASSACHUSETTS, U. S. A.

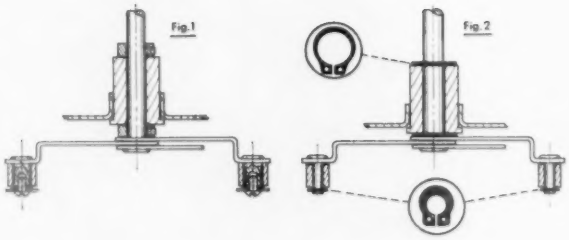
For More Information Circle No. 587 on Inquiry Card—Page 17



PA Cuts Cost of Rotor With Alternate Material

The PA for a manufacturer of pneumatic wrenches used to buy a rotor made from AISI 8620 steel. By permitting his supplier to switch to leaded Aristoloy 8620 steel, he achieved a substantial cost reduction. Why? Because his supplier was then able to produce the part 25% faster on a screw machine and also saw blade life (for sawing radial slots) increased from 18 pieces to 60 pieces.

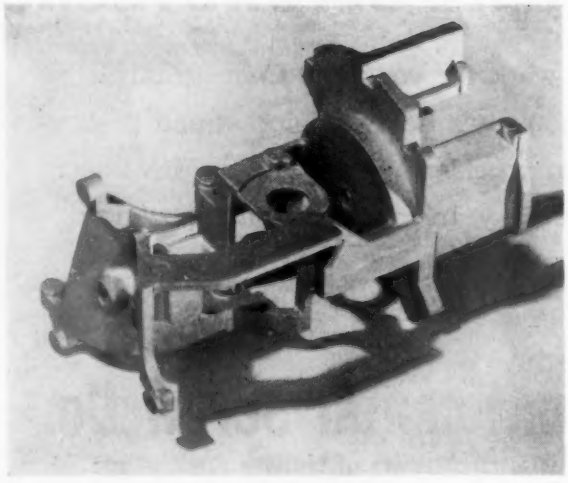
CIRCLE NO. 114 ON INQUIRY CARD—PAGE 17



Rings Replace Fasteners, Save $.23 per Unit

Telectrosonic Corp. of Long Island City, N. Y. replaced bulky fastening devices with 13 Waldes Truarc retaining rings in five subassemblies of its portable magnetic tape recorder. An example of one change is in the wind-rewind mechanism. Formerly, two collars and set screw secured the wind-rewind shaft. Rollers were held in place by flat washer, lock washer, and screw. Now two rings replace collar and set screw for a $.04 saving per unit or $.08 per assembly. Since grip rings do not require grooves, tapping for screws is eliminated. Also, axial location of rings eliminates need for critical tolerance on shaft length.

CIRCLE NO. 115 ON INQUIRY CARD—PAGE 17



Change From Sand to Die-Casting Brings 97% Cost Reduction

Bendix Foundries, Teterboro, N.J., had the problem of reducing the cost of an intricate mechanism frame for an aircraft instrument. Originally the part had been termed "too difficult" for die casting and was, therefore, made as a sand casting. But today the part is being made as a die casting in volume quantities. Casting cost has been cut 97.7% and the cost of subsequent machining operation is 36% less than it was when the part was a sand casting.

CIRCLE NO. 116 ON INQUIRY CARD—PAGE 17



Aluminum SHAPES

by ROLL FORMED

Aluminum shapes reduce production costs and eliminate waste. Let **ROLL FORMED** deliver your aluminum shapes notched and cut to length. **ROLL FORMED** shapes are uniform and accurate—made to your most rigid specifications. **ROLL FORMED** shapes are controlled through all phases of tool design, roll making and final production. Send us your blueprints for shapes in carbon, galvanized and stainless steel, copper, zinc, clad metals, as well as aluminum. Let us show you how our modern plant facilities can produce your sections at lower costs to you.

Write for Catalog No. 1053

ROLL FORMED PRODUCTS
COMPANY

MAIN OFFICE AND PLANT 3753 OAKWOOD AVE. • YOUNGSTOWN, OHIO

For More Information Circle No. 588 on Inquiry Card—Page 17



UNITCASTINGS
PLAY AN IMPORTANT PART IN MANUFACTURER'S LEADERSHIP..

Accuracy cuts cost.
Less than 1 hour machining time is required per unit assembly with Unitcastings.

Accuracy.. Appearance.. and Dependability

..ADD UP TO TOP QUALITY PRODUCT!

A nationally known manufacturer of house trailer tow-bar mechanisms keeps quality up and costs down by specifying *Unitcastings*. Dimensional accuracy, internal soundness and good surface appearance hold finishing costs to a minimum and help retain customer acceptance. In less than six years of production and over 202,000 parts later, less than ½ of 1% of the total castings shipped have been returned for any reason.

Beginning with the original design of the castings, Unitcast's engineering service has kept pace too, by continually modernizing the design to suit automobile chassis improvements. This is just one of the many Unitcast Foundry Engineering Services available to our customers.

Let Unitcast help you modernize your product by including foundry standards in the design. Keep your production cost competitive. . .write today!

UNITCAST CORPORATION • Toledo 9, Ohio

In Canada: CANADIAN-UNITCAST STEEL, LTD., Sherbrooke, Quebec

Unitcast QUALITY STEEL CASTINGS

For More Information Circle No. 589 on Inquiry Card—Page 17

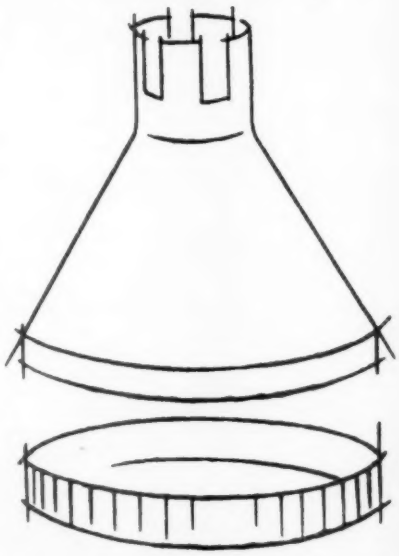
Powder Metallurgy Lowers Cost of Gear



A gear used on soft drink vending machines can be made by powder metallurgy at 50% the cost of older methods. Using 97% iron and 3% copper, it duplicates the result of an aluminum bronze part with a Rockwell hardness of B-75 to B-90. Made at the rate of 800 per hour, the plain gear with a flat bore sells for 9¢ each in lots of 20,000 or more. In addition to the low cost, the part maintains close tolerances and presents a file-hard surface.

Circle No. 117 on Inquiry Card—Page 17

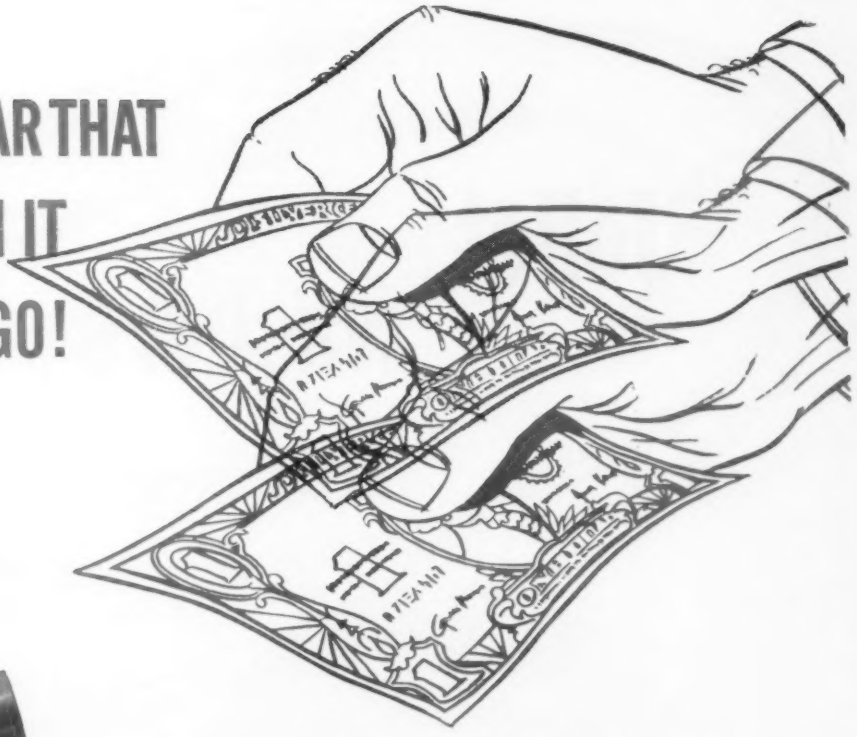
Changing to One-Piece Design Produces Big Saving



One buyer found it paid to make use of the engineering and manufacturing skills of the specialty supplier. He was buying a fabricated assembly in two pieces. Plume & Atwood was able to make it one piece because he knew how to solve the problem of making a shell where the opening was at the small end. Solution to the problem involves re-coning and knurling.

Circle No. 118 on Inquiry Card—Page 17

HERE'S ONE DOLLAR THAT BUYS MORE THAN IT DID 25 YEARS AGO!





. . . the dollar you invest in SEALMASTER BALL BEARING UNITS for products you build or buy!

Purchasing power of the dollar may have gone the way of the five cent cigar, but year after year SEALMASTER Bearing Units give you more and more for your component purchasing dollars.

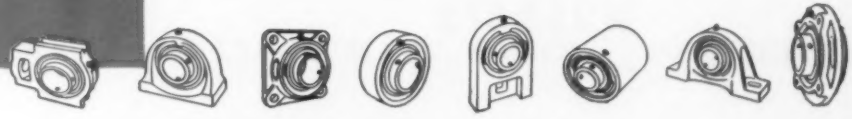
SEALMASTER research and engineering continues to bring you the latest advances in bearing design and manufacture. SEALMASTER Bearing Units contain a combination of patented features you will find in bearing units of no other make.

SEALMASTER has a complete line of bearing units to answer all your requirements for outstanding bearing performance.



Factory Representatives and Dealers Located in All Principal Cities

SEALMASTER BALL BEARING UNITS



SEALMASTER BEARINGS A DIVISION OF STEPHENS-ADAMSON MFG. CO. • 51 RIDGEWAY AVE., AURORA, ILLINOIS

For More Information Circle No. 590 on Inquiry Card—Page 17

Joliet washers



world's foremost producer of flat washers

JOLIET WROUGHT WASHER CO. • JOLIET, ILLINOIS
For More Information Circle No. 591 on Inquiry Card—Page 17

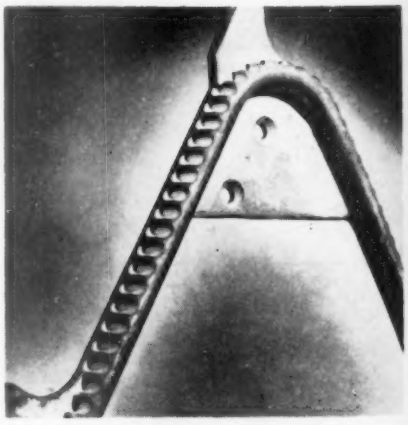
Change in Components Cuts Machine Down Time



The Roto Bag Machine Corporation used to use metal gusset plates and gusset formers in its bagmaking machines. It found that production output of plastic bags could be increased 20% by making these components of the machine out of Formica. The increased output and decreased cost result from the lower rejection rate of the Formica machine components and the fact that they are easier to maintain and replace.

Circle No. 119 on Inquiry Card—Page 17

Machining Eliminated By Use of Shell Molded Castings



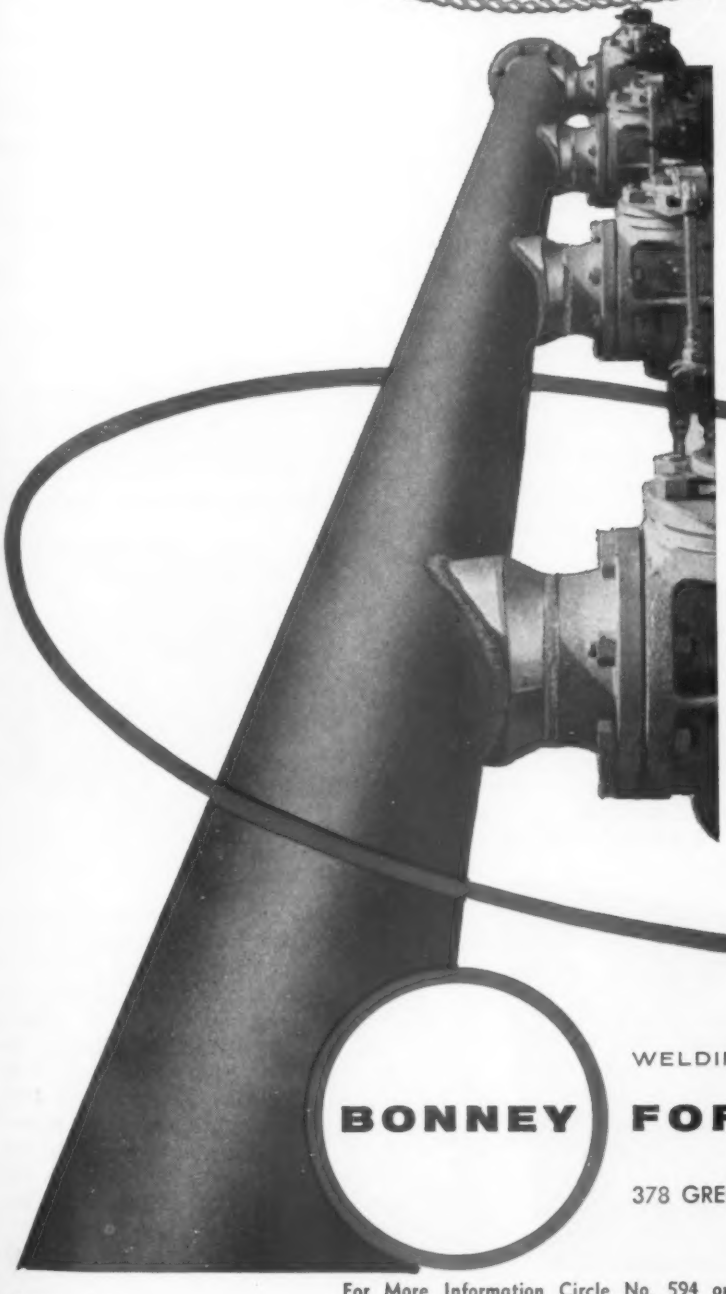
American Machine & Foundry Co. found that it could eliminate machining costs and substantially reduce scrap by using shell molded castings. A case in point is the intricate iron distributor track used in the company's bowling pin spotting machines. After being shell molded to tolerances of plus or minus .008, the part is ready for use after cleaning in the foundry room. No machining is necessary.

Circle No. 120 on Inquiry Card—Page 17

For More Information Circle No. 592 on Inquiry Card—Page 17→



customer reduces
estimate of job cost
$24,000
by switch to
WELDOLETS



An oil piping
contract recently
was reduced by $24,000
by changing specifications to
WELDOLET welding fittings.

Comparable savings are possible
on almost every piping contract.
It will pay you to examine this
positive means of reducing your
piping costs. Write us for details.

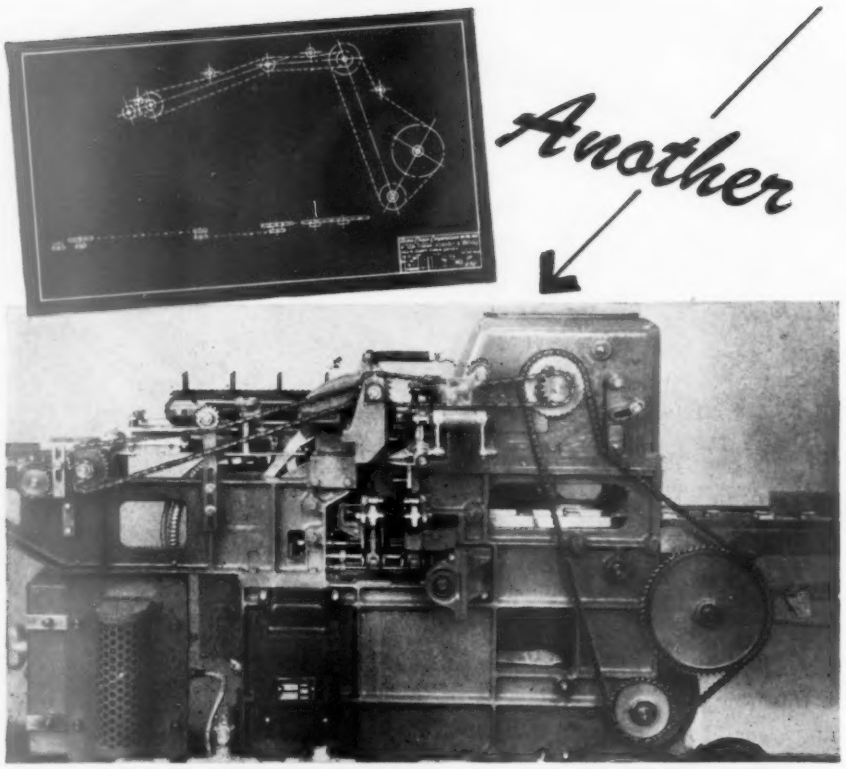
BONNEY

WELDING FITTINGS DIVISION

FORGE & TOOL WORKS

378 GREEN ST., ALLENTOWN, PENNA.

For More Information Circle No. 594 on Inquiry Card—Page 17

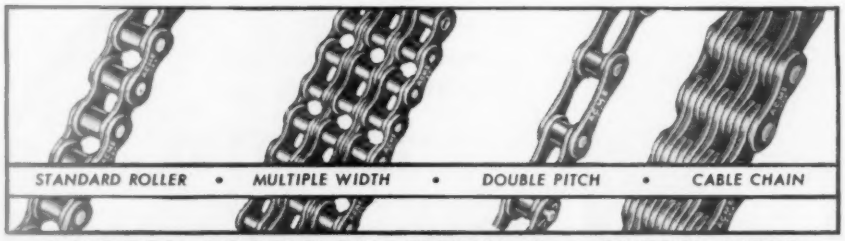


SOLUTION by ACME

Another instance where ACME ENGINEERS went to the drawing board for a customer. ACME delivers more than chain. ACME delivers complete advisory service . . . especially engineering-wise.

Surely your operation can benefit by our 35 years of roller chain experience. Call at will . . . at the slightest hint of power transmission lag or any other chain problem.

Write or phone Holyoke • JEfferson 2-9458



RUGGED PRECISION CHAIN for EVERY NEED

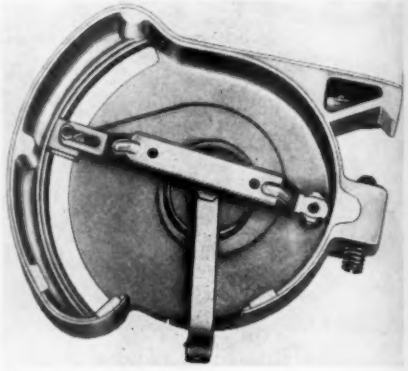


Write Dept. 8W for new illustrated 76 page catalog on use and application of roller chains and sprockets.

Acme Chain Corporation
HOLYOKE
MASSACHUSETTS

For More Information Circle No. 595 on Inquiry Card—Page 17

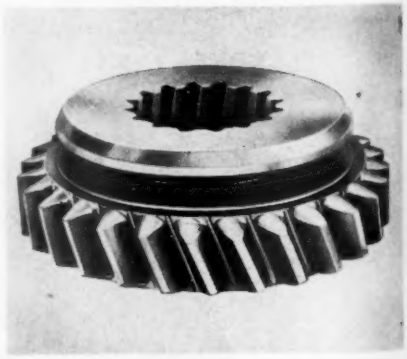
Special Spring Meets Difficult Problem; Lowers Costs



Tension control devices made by Walter Kidde & Co. for the textile manufacturing industry must be extremely accurate and stable in performance. Both the rate and contour of control springs used in the unit must be stable. Reliable Spring & Wire Forms Co. designed a unique, cheap, expendable heat treat fixture, which, along with its performing operations and heat treating produced a highly satisfactory spring that other vendors had failed on. Savings are achieved through lower reworking costs because of the reduced number of rejects.

Circle No. 121 on Inquiry Card—Page 17

Parts Buyers Slashes Cost by Changing Material Spec

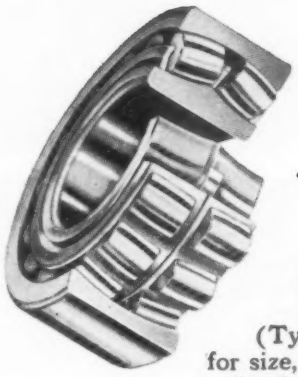


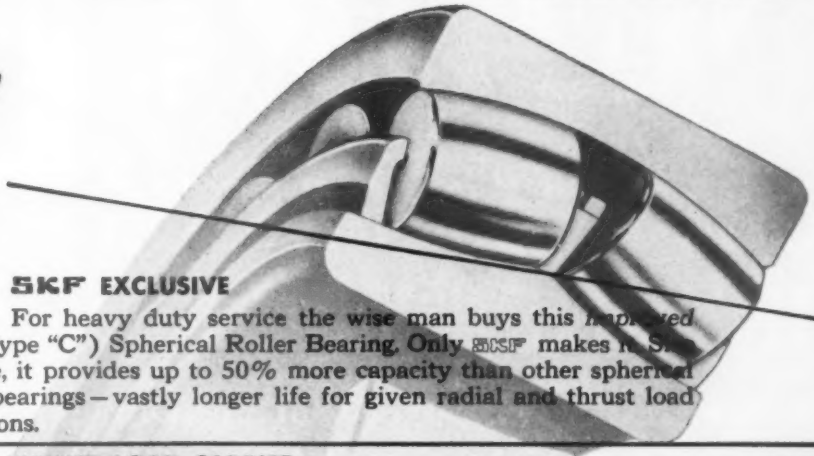
A well known machinery manufacturer uses large numbers of spur gears in its products, and purchases them from a specialty supplier. It achieved a substantial price reduction by permitting the supplier to make them from Aristoloy 4140 leaded steel instead of AISI 4140 steel. The supplier was able to reduce his price because with the leaded steel machining time on the gear was cut 33%. Finish on the part is now better also.

Circle No. 122 on Inquiry Card—Page 17

Bearings the wise man buys

To buy SKF Bearings is to obtain an important "extra"—the assistance of the industry's most experienced sales engineering staff—unbiased assistance because SKF makes an exceptionally broad line of ball *and* roller bearings.



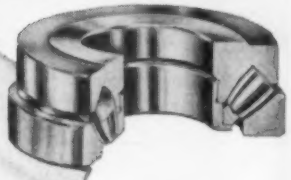


SKF EXCLUSIVE

For heavy duty service the wise man buys this *improved* (Type "C") Spherical Roller Bearing. Only SKF makes it. S... for size, it provides up to 50% more capacity than other spherical roller bearings—vastly longer life for given radial and thrust load conditions.

SKF THRUST LOAD CARRIER

SKF's Spherical Roller Thrust Bearing is the wise buyer's answer where the problem is to support heavy thrust loads or combined loads which are predominantly thrust, on vertical or horizontal shafts. The only roller thrust bearing that is inherently self-aligning.

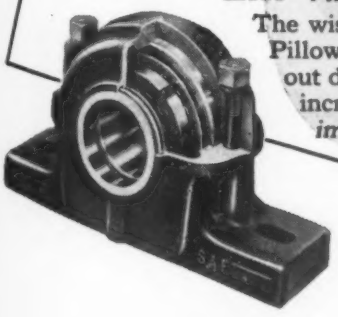




SKF STEELWORKER

For roll necks (and many other applications, too) the wise buyer chooses SKF Multi-Row Cylindrical Roller Bearings, a design which provides the utmost in radial rigidity. In the larger sizes, SKF's hydraulic system makes mounting and dismounting easy.

SKF PROVED AND IMPROVED



The wise buyer has long specified the proven SKF Triple-Seal "SAF" Pillow Block. The "SAF" is easy to install and inspect; effectively seals out dirt while retaining lubricant; bearing self-aligns. Now, to provide increased life and capacity, SKF makes the "SAF" available with the *improved* (Type "C") Spherical Roller Bearing. As a further improvement, the "SAF" can now be obtained with either cast iron or steel housing.

7623

Let your *Authorized* SKF Distributor or SKF Field Engineer help you put the right bearing in the right place in your products.

Request SKF Catalog 390 for complete data on all SKF Bearings.



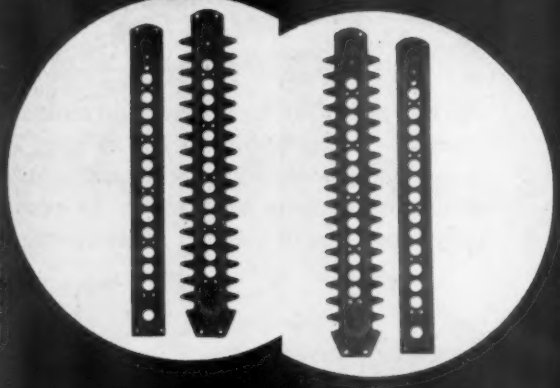
SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.—
manufacturers of **SKF** and HESS-BRIGHT® *bearings.*

SKF®

BALL AND ROLLER BEARINGS

© 1955 SKF Industries, Inc.

For More Information Circle No. 598 on Inquiry Card—Page 17



Machined Parts Cost $3.00

Presteel Stampings Cost 78¢

WOULD 74% SAVING INTEREST YOU?

Here's how PRESTEEL saved Porter-Cable $2.22 per unit!

PORTER-CABLE

Porter-Cable Machine Co., Syracuse manufacturer of power tools, came to Presteel with a pressing problem: The hedge trimmer cutter bar and cover shown above were too expensive. Made from flat stock by extensive machining operations, they cost $3.00 per pair.

Could Costs be Cut by stamping? Our design engineers, backed by 70 years' exclusive stamping experience, went to work, devised ingenious new production methods.

Instead of Machining the grooves, we coined them in a 1500 ton hydraulic press ideally suited for such a difficult task.

The Result? Low cost, just **78¢** per pair for these two complex parts, **a 74% reduction** in price! Accuracy, equal to that achieved by costly machining! Quality, identical to the machined parts! Speed, far greater than that of slow machining operations! All in a day's work at Presteel!

Bring us your "impossible" pressing problem where cost is a big factor. Let Presteel try it on for size.

Our 70 years of engineering and production know-how is always at your service. The tougher the job, the better we'll like it! Mail the coupon today.



Your part has a precedent at Presteel.

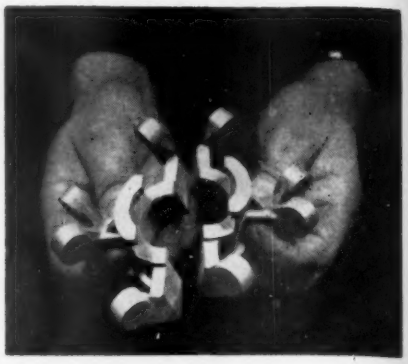
Worcester Pressed Steel Company
610 Barber Ave., Worcester 6, Mass.

Please ask your representative to call. ☐
Please send newest brochure. ☐

Name_____
Title_____ Company_____
Street_____
City_____ Zone_____ State_____

For More Information Circle No. 599 on Inquiry Card—Page 17

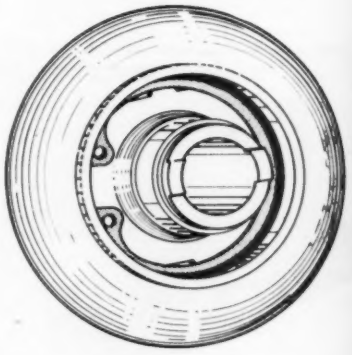
Switch to Investment Casting Slashes Part Cost



A Texas manufacturer found that two Inco investment castings could replace six individual parts. The assembly on which the cost reduction was made is a collar on the "ear" of a Navy remote control sonar device for sub hunting. The collar formerly consisted of two main parts machined from bar stock and four paddle brackets machined from weldments. The weldments require blanking, forming, and premachining. The six parts were assembled with screws. Now, two investment castings do the job at lower cost.

Circle No. 123 on Inquiry Card—Page 17

Ring Replaces Two Screws, Eliminates Tapping



American Hardware Corp., New Britain, Conn., cut labor cost and eliminated rejects by using Waldes Truarc retaining rings in its locks. In one knob sub-assembly it uses a beveled retaining ring and eliminates two screws and two tapped holes. Besides the cost saving, a stronger, more accurate assembly was obtained and rejects were eliminated.

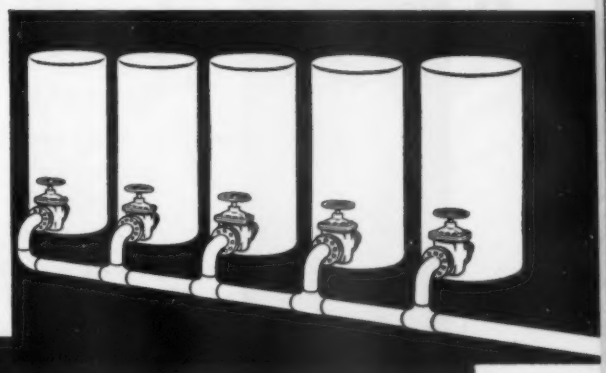
Circle No. 124 on Inquiry Card—Page 17

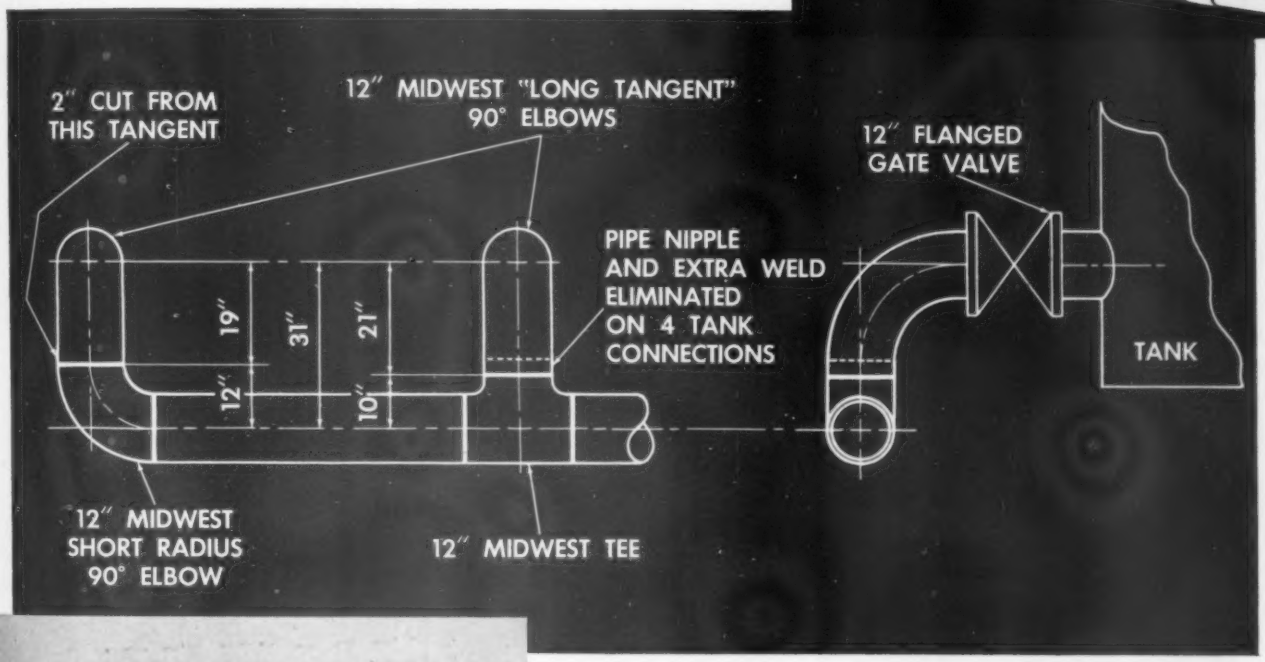
For More Information Circle No. 600 on Inquiry Card—Page 17→

MIDWEST "LONG TANGENT" ELBOWS

SAVED $156.20

On This Welding Piping





MIDWEST "LONG TANGENT" ELBOWS COST NO MORE THAN OTHER ELBOWS



The Problem:

To connect the five tanks shown in the sketch at top to a common 12" header.

The Difficulty:

The center-to-outlet dimension of the 4—12" tees is only 10", while the shortest elbow available measures 12" center-to-end. Thus, if standard long radius elbows are used next to the five tank valves, four short nipples and four extra 12" welds would be required.

The Solution:

By using Midwest "Long Tangent" elbows as shown in the blueprint, the expense of the four extra nipples and welds was eliminated at the cost of just one cut! The actual net savings made by "Long Tangent" elbows on this job was $156.20.

Remember—Midwest "Long Tangent" elbows cost no more than regular elbows! For further information, write for Catalog 54.

MIDWEST PIPING COMPANY, INC.

Main Office, 1450 South Second St., St. Louis 4, Missouri

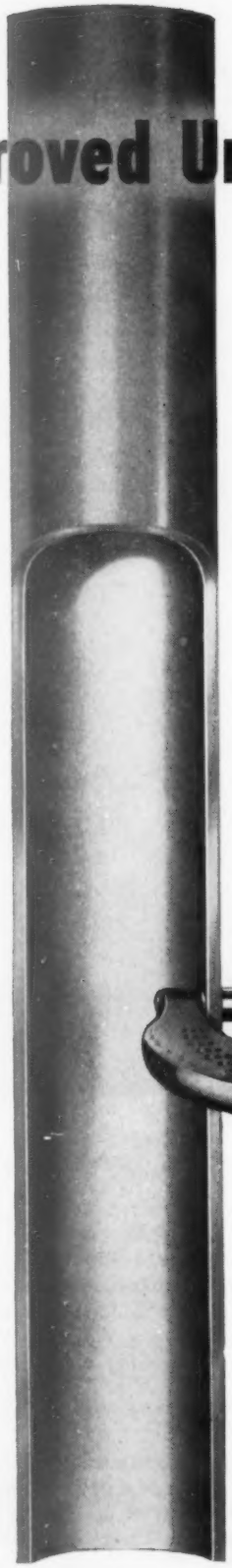
PLANTS: ST. LOUIS, PASSAIC, LOS ANGELES, and BOSTON

SALES OFFICES: NEW YORK 7—50 CHURCH ST. • LOS ANGELES 33—520 ANDERSON ST. BOSTON 27—426 FIRST ST. • CHICAGO 3—79 WEST MONROE ST. • CLEVELAND 14—616 ST. CLAIR AVE. • TULSA 3—224 WRIGHT BLDG. • HOUSTON 2—1213 CAPITOL AVE.

6820

MIDWEST WELDING FITTINGS IMPROVE PIPING DESIGN AND REDUCE COSTS

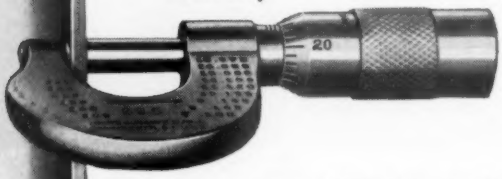
Proved Under PUNISHMENT



STANDARD CYLINDER TUBING

"Mirror Finished" to precision tolerances, it's used in automobile shock absorbers, power steering, hydraulic pumps . . . without further sizing or finishing.

Here's a busy part of an automobile shock absorber that's built for brutal punishment. It's Standard's modern "mirror-finish" Cylinder Tube. So that it won't weaken or leak under punishment, every inch of this tubular "toughie" must measure up to exacting specifications—in cylinder finish . . . in I.D. tolerances as close as .001" . . . in extreme uniformity of wall thickness and concentricity . . . in internal pressure resistance, to shocks up to 9000 P.S.I. The elimination of broaching or further processing of any kind effect significant savings for our customers in product assembly.



As you see here, the engineering involved behind the application of tubing to your product is *more than skin deep at Standard.* Our engineers will gladly show you why in helping you with your tubular application—whether it involves a simple structural or mechanical member . . . or a precision application.



Send for 8-page folder on all Standard products or see Sweet's Design Catalog.



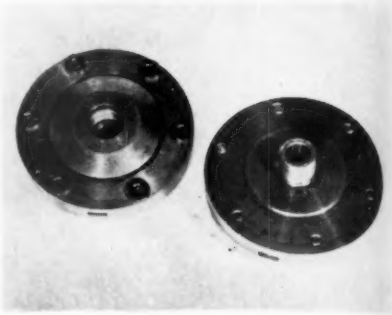
MAKE "STANDARD" YOUR SOURCE FOR—

- WELDED MECHANICAL TUBING
- WELDED STAINLESS TUBING
- BOILER AND HEAT EXCHANGER TUBING
- EXCLUSIVE "RIGIDIZED" PATTERNS

STEEL TUBING SIZES: ½" O. D. TO 5½" O. D. — .028 TO .260 WALL.
STAINLESS SIZES: ¼" O. D. TO 4½" O. D. — .020 TO .154 WALL.

For More Information Circle No. 601 on Inquiry Card—Page 17

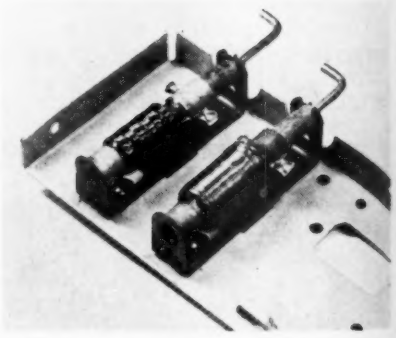
Wire Thread Inserts Replace Bushings, Cut Costs



The Auto-Truer, a tool which centers work in a lathe, formerly used hardened steel bushings in its front plate which is fixed to the chuck and work-piece. However, the bushings needed extra machining and staking, and also projected from the plate. Changing to Heli-Coil stainless steel wire thread inserts reduced costs. The new method also provides superior threads that permit repeated tightening and loosening without wear to the threads or to the locking screws.

Circle No. 125 on Inquiry Card—Page 17

New Type Fastener Cuts Time For Assembly and Handling



Westinghouse Electric's Television-Radio Division cut costs by using an improved coil form fastener for attachment of television tuning coils. With the Tinnerman fastener, it is possible to mount the coil to the chassis by simply snapping the fastener into mounting holes. This is substantially faster than assembling with rivets or threaded fasteners. Adjustment of the tuning coil can now be done readily with the adjusting rod. Previously, it was necessary to use a socket-head screw driver and more time was required.

Circle No. 126 on Inquiry Card—Page 17

New!

ROLLWAY

Sealed Cartridge Bearing

Versatile, low in cost, self-contained, easy to install



The Rollway Sealed Cartridge Bearing is adaptable to a remarkable variety of uses.

Low cost for a wide range of applications is offered by the various seal or retaining disc combinations: 1. A seal at each end; 2. A retaining disc at each end; 3. A seal on one end, retaining disc on the other.

Specifically tailored to each application, the Rollway Sealed Cartridge Bearing prevents dangerous overloading or wasteful underloading (see description of hardening and grinding factors for rollers, at right.) The sealed design keeps dirt *out* and lubrication *in*.

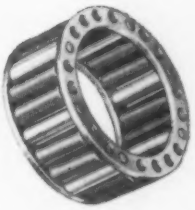
Because it is self-contained, installation is easier, faster, less costly.

FREE ENGINEERING AND METALLURGICAL SERVICE

Let's examine your bearing problems together to see how the new Rollway Cartridge Bearing can cut the costs and improve the performance of your products . . . no cost, no obligation!



RETAINING DISC is available on either or both ends.



ROLLERS are available in three types: 1. Hardened but unground; 2. Hardened and ground; 3. Unhardened and unground.



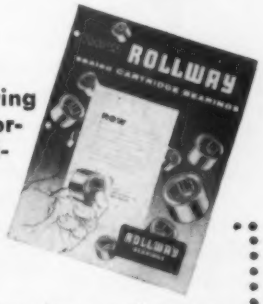
SLEEVE is unhardened or heat treated, depending upon use of unhardened or hardened roller assembly.



SEALS are of sintered iron — cannot score shaft. Available on either or both ends.

FREE—
Send coupon below

for Sealed Cartridge Bearing folder, with complete information, sizes, and specifications.



ROLLWAY
BEARINGS
COMPLETE LINE OF RADIAL AND THRUST CYLINDRICAL ROLLER BEARINGS

ROLLWAY BEARING CO., INC.
555 Seymour St., Syracuse, N. Y.

Please send folder of complete information on the new ROLLWAY Sealed Cartridge Bearing.

Name..... Title.....
Firm Name .....
Address.....
City..... Zone.... State.....

ENGINEERING OFFICES: Syracuse • Boston • Chicago • Detroit • Toronto • Pittsburgh • Cleveland • Milwaukee • Seattle • Houston • Philadelphia • Los Angeles • San Francisco

For More Information Circle No. 602 on Inquiry Card—Page 17



INSPECTION



EXPEDITING



STOCK



SHIPPING

DESIGN



he has **YOU**

on **HIS** *mind*

He's a key man in the Buffalo Bolt organization. It's his business to see that you get fast, accurate information on prices, deliveries or anything else pertinent to your fastener requirements.

Call him at your distributor, one of our branches, or at our factory and see for yourself why you get the finest and fastest service from Buffalo Bolt.

DISTRICT OFFICES

WESTERN OFFICE
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HArrison 7-2179

EASTERN OFFICE
New York City
REctor 2-1888

CENTRAL OFFICE
North Tonawanda
JAckson 2400 (Buffalo)

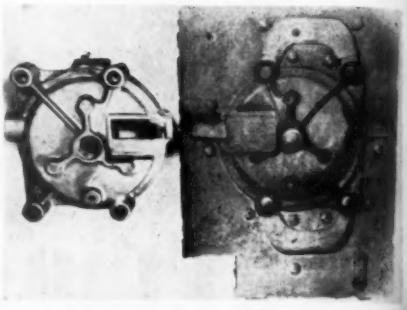


BUFFALO BOLT COMPANY
Division of Buffalo-Eclipse Corporation
NORTH TONAWANDA, N. Y.

Making both FASTENERS & FRIENDS for 100 years

For More Information Circle No. 603 on Inquiry Card—Page 17

Shell Molding Saves $30 On Ice Crushing Machine



A Pennsylvania manufacturer cut the cost of a new ice crushing machine which retails for $300 by $30. Cast aluminum component parts are now made by the shell molding process instead of by the green sand process. The change in method results in parts that require substantially less finish machining. For example, an intricate bowl in the ice crusher formerly required facing, boring, reaming, tapping and drilling on a large drill jig. Now it is only necessary to drill and tap ten small holes and ream three bores.

Circle No. 127 on Inquiry Card—Page 17

Speed Clip Saves 56% On Material Costs



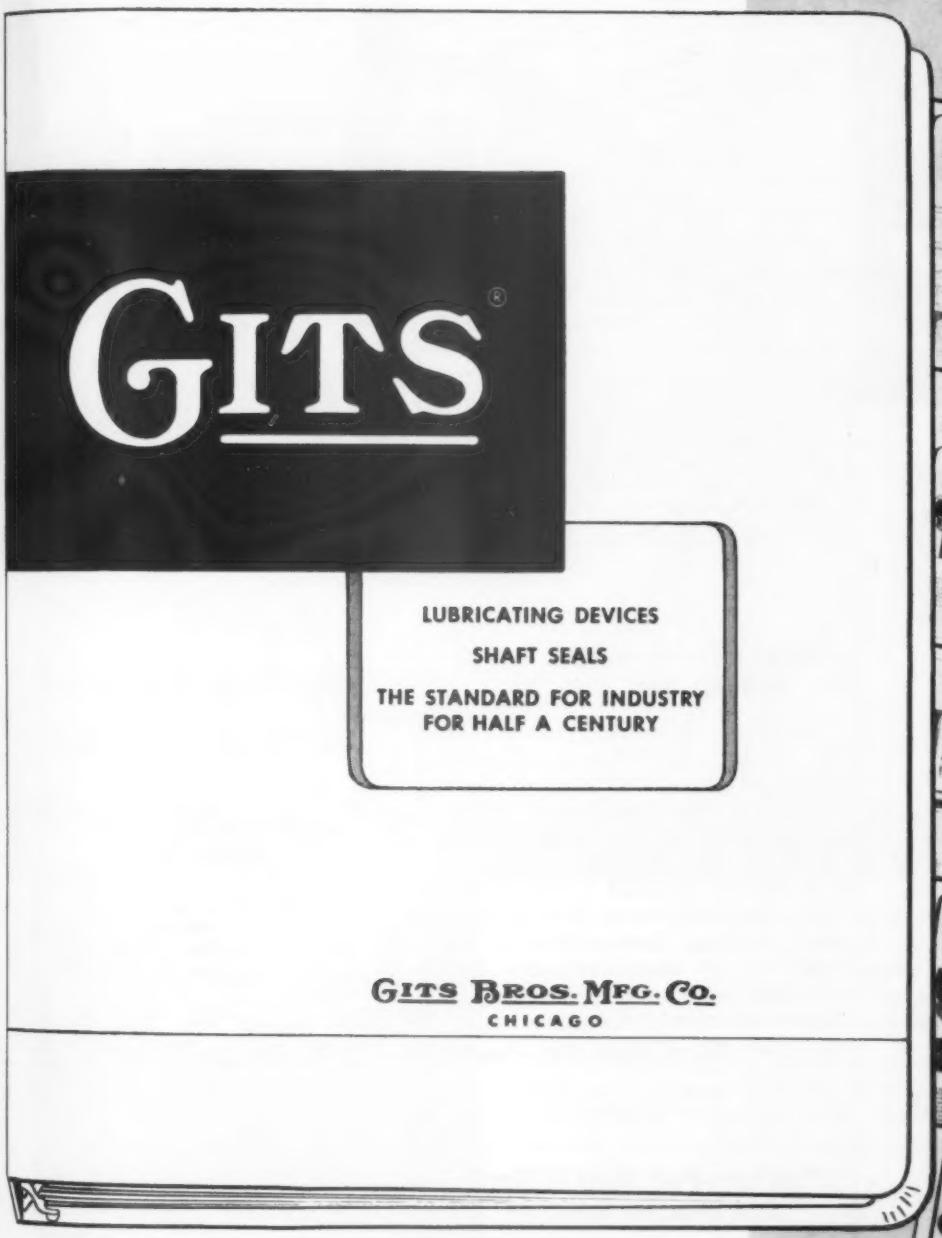
Columbian Art Works, Milwaukee, makers of desk calendars, found they could save 56% on material costs and 32% in assembly time by using a new method of attaching desk calendar's wire arch. Previously the arch required 6 parts—a spring clip, bottom plate, 2 bolts and 2 nuts. With a multiple-function Tinnerman Speed Clip no other parts are needed to hold the wire arch. One all-purpose part replaces 6 parts.

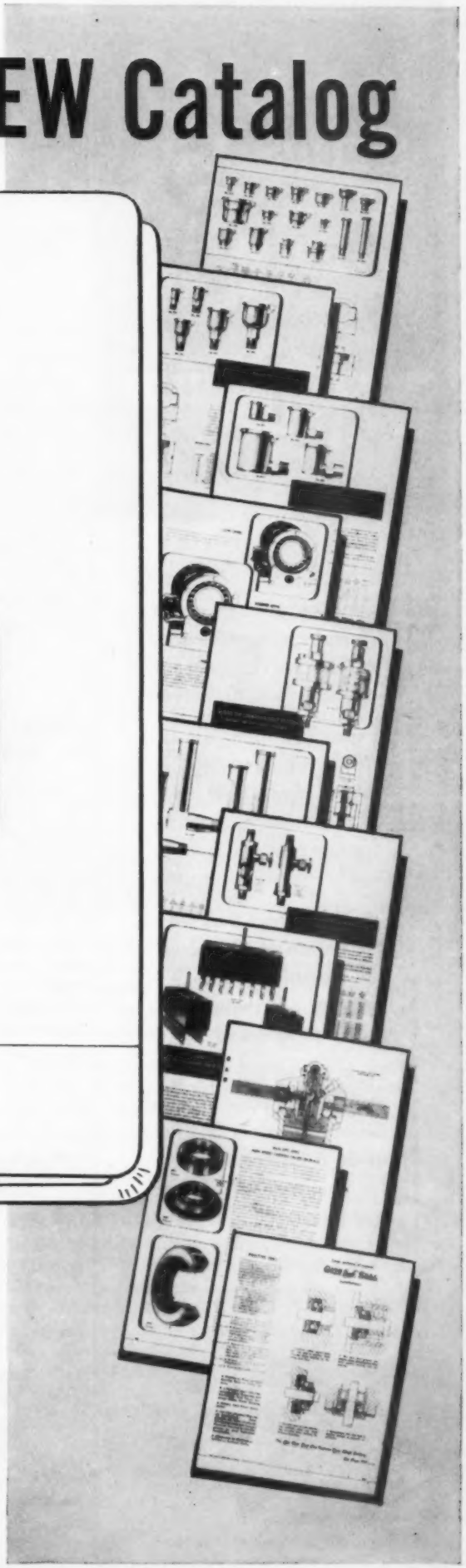
Circle No. 128 on Inquiry Card—Page 17

FOR FURTHER INFORMATION ON PRODUCTS IN THIS ISSUE PLEASE USE INQUIRY CARD ON PAGE 17

For More Information Circle No. 604 on Inquiry Card—Page 17→

Send For This NEW Catalog





More than 100 pages of actual-size illustrations, detailed specifications, cross-section drawings and brief but complete descriptions of Gits lubricating devices and shaft seals. Here's a "must" for your day-to-day reference. Send for it today (on your company letterhead, please).

GITS BROS. MFG. CO.

1865 South Kilbourn Avenue
Chicago 23, Illinois

For More Information Circle No. 605 on Inquiry Card—Page 17

LIFE STEPS UP AT 40!

1915 - 1955
FORTY DE-STA-CO QUALITY STAMPINGS YEARS

Sure we've been making stampings for 40 years! . . . But we're going *up* the hill faster than ever!

Expanded facilities! . . . Newer equipment! . . . Wider diversification! . . . Even more customers—and from every major industry!

The mere fact that we're the nation's best-known job stamping manufacturer . . . shows how we've progressed.

Now . . . as our life *steps up* at 40 . . . would be a good time to let us do a bang-up job for you, too!

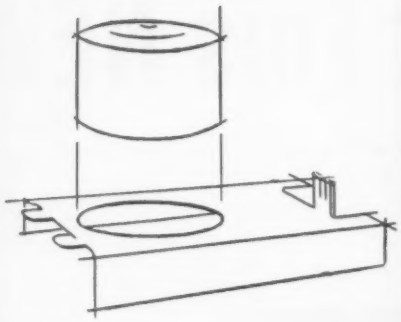


DETROIT STAMPING COMPANY
DE-STA-CO
408 Midland Ave., Detroit 3, Mich.

America's Best-Known Job Stamping Manufacturer

For More Information Circle No. 606 on Inquiry Card—Page 17

Specialty Supplier Cuts Cost of Brass Shell



A well known manufacturer used to assemble a brass shell from two separate components purchased from outside suppliers. It discovered that a specialty supplier, Plume & Atwood Mfg. Co., could supply the shell in a one piece design. Costs were reduced substantially since Plume & Atwood was able to make the part from a single strip of metal processed on one machine with progressive tools.

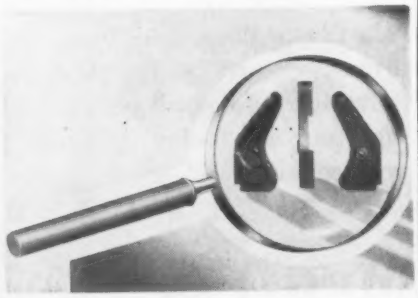
Circle No. 129 on Inquiry Card—Page 17

Change To Three-Piece Design Reduces Part Cost 25%

Hartford Machine Screw Co., Hartford, Conn. reduced the cost of a customer's part 25% by making it as a three-piece weldment consisting of two stampings and one screw machine part. The part, a cam for a manually operated crimping tool, was previously made from a single solid forging. Cost reduction was achieved by eliminating the considerable amount of machining inherent to the old design.

Circle No. 130 on Inquiry Card—Page 17

Precision Part Made in Single Operation By Sintering

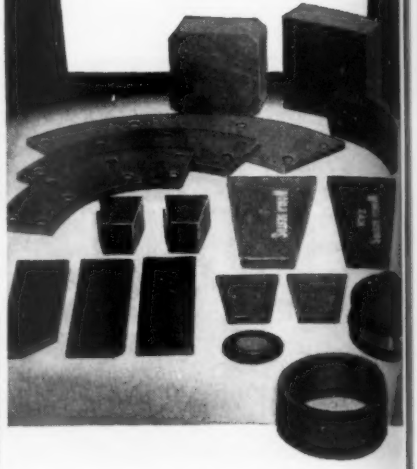


Polaroid Corporation uses a precision tripper flywheel in its Polaroid Land Camera. If the part were

(*Please turn to page* 178)

you can buy

BETTER BRAKE PERFORMANCE!



amazing NEW

WORLD BESTOS
FRICTION MATERIALS

stop brake fade and glaze . . . assure constant friction and longer life of trouble-free service.

Brake fade, glaze, short lining life and excessive wear mean costly brake maintenance and production losses that affect the service record of your product.

World Bestos, specializing for more than 30 years in the manufacture of friction materials, supplies blocks, linings and segments engineered to solve your brake problems . . . to give your brakes a longer life of dependable, trouble-free service.

Proven friction materials for brakes on cranes, drilling rigs, hoists, drag lines, large forming presses, elevators or any type of industrial application. Also linings for automatic transmissions, torque converters and automatic clutches.

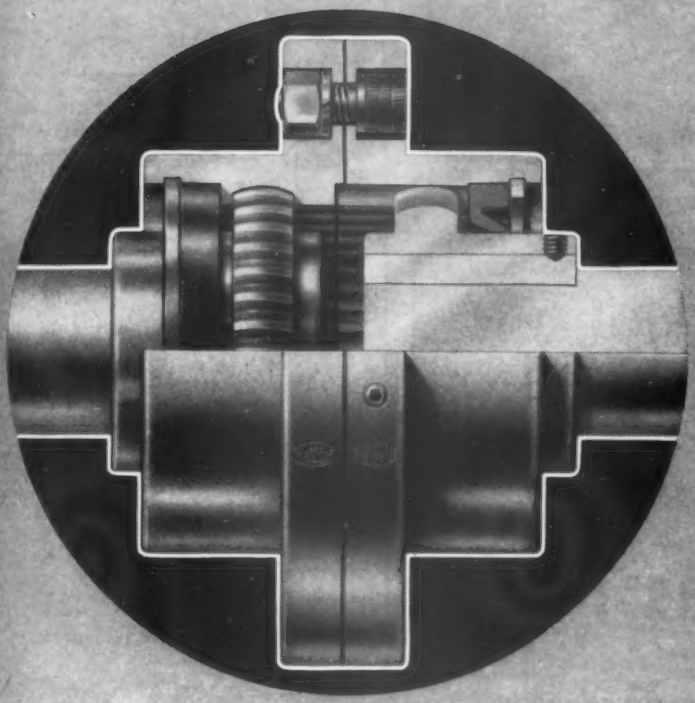
For prices and delivery information send prints or specifications to WORLD BESTOS, Indusirial Products Section, New Castle, Ind. Engineering and development service is available. Write for free folder.

WORLD BESTOS
NEW CASTLE, INDIANA
DIVISION OF THE
Firestone
TIRE & RUBBER CO.

For More Information Circle No. 607 on Inquiry Card—Page 17

A BETTER GEAR COUPLING

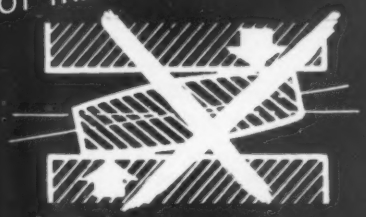
...with teeth cut on a true ARC



SPHEREFLEX

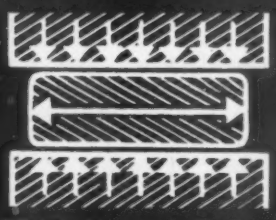
- UP TO 7° ANGULAR MISALIGNMENT
- FULL FACE TOOTH CONTACT ALWAYS
- CONSTANT ANGULAR VELOCITY

NOT THIS



Standard gear type coupling—note excessive backlash and stress concentration when coupling is flexed.

THIS



"SPHEREFLEX"... teeth do not depend on backlash—teeth mesh snugly together, tolerances are reduced to absolute minimum.

The new and different "SPHEREFLEX" Coupling has been exhaustively tested in a wide variety of severe applications—and in every instance has proved itself a superior coupling. "SPHEREFLEX" Couplings are now available from stock at competitive price levels with conventional couplings.

The "SPHEREFLEX" is different and better, because the male teeth are cut on a "true spherical arc", while the internal teeth are cut with a straight root—permitting the curved tooth to always maintain a full line of contact with internal tooth even when the coupling is flexed. . . . Also this feature eliminates the usual dependency for flexibility upon excessive backlash between coupling teeth, point contact or springs. . . . In fact, size for size, the "SPHEREFLEX" Coupling will withstand higher horsepower and greater misalignment than any other comparable coupling. Standard "SPHEREFLEX" Couplings will compensate for angular misalignment up to 3½° plus or minus on each coupling half, or a total of 7°. Special "SPHEREFLEX" Couplings are available for 14° misalignment. Write for new Catalog C-540.

PHILADELPHIA GEAR WORKS, INC.

ERIE AVE. AND G ST., PHILADELPHIA 34, PA.
NEW YORK • PITTSBURGH • CHICAGO • HOUSTON • LYNCHBURG, VA.
Virginia Gear & Machine Corp., Lynchburg, Va.



Industrial Gears & Speed Reducers

LimiTorque Valve Controls

established 1892

For More Information Circle No. 610 on Inquiry Card—Page 17



THE DIES ARE YOURS FREE!

Yes, we do hundreds of stamping jobs without making special tools—and there's a good reason for this. In stamping out laminated shims for over forty years, we've developed much special equipment and tooling unknown in the average stampings house... including an arsenal of blanking dies and punches...and we've acquired unusual production techniques and skills. This equipment and these special skills are at your service without charge.

ROCK-BOTTOM PRICES . . . BY THREE METHODS!

These three separate production techniques are judiciously applied to save you money on your stamping needs!

MACHINE CUT METHOD. Regardless of quantity, we have the method that fits your needs best! For half-a-dozen or a few hundred stampings, our *Machine Cut Method* produces the stampings at amazingly low cost.

SHORT RUN METHOD. As quantities increase, we shift to the *Short Run Method*, with stock tooling and temporary dies—such as the surprisingly low-priced Hecht-type die.

PRODUCTION METHOD. Or we shift to our *Production Method* using high speed self-feeding presses.

For full information, send for our free 12-page booklet "Service In Stampings." And next time you need stampings, why not let us bid—and discover the savings we offer you!

LAMINATED SHIM COMPANY, INC.

STAMPINGS DIVISION

"ONE PIECE OR ONE MILLION"

2406 UNION STREET • GLENBROOK, CONNECTICUT

For More Information Circle No. 611 on Inquiry Card—Page 17

(*Continued from page* 174)

made as a machined extrusion or a die casting, secondary operations would be necessary such as coining or machining of contours. Costs are slashed by sintering it from powdered brass since the part is complete in but a single operation.

Circle No. 131 on Inquiry Card—Page 17

Damage From Screw Slippage Eliminated



A. C. Gilbert Co. of New Haven, Conn. believes that over a ten year period Phillips screws pay for themselves many times over. Single slot screws proved treacherous and expensive in time and damage loss, especially where tightness is vital in tough-to-reach places in fan assemblies and other locations where units must stand continuous vibration.

Circle No. 132 on Inquiry Card—Page 17

Cold Heading Lowers Material And Production Costs

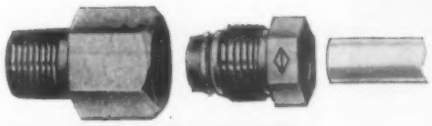
A manufacturer was making a vise handle by machining it from bar stock in a screw machine. Then one end was threaded while the other was machined to a ball head. Finally, a separate internally threaded ball was added. National Screw & Mfg. Co., developed a means of faster production and lower cost. The handle and one head were cold formed to size. Then, the other head was hand headed on the handle after passing through the jaw adjusting screw. Result of the new method was a substantial saving in material and production costs.

Circle No. 133 on Inquiry Card—Page 17

Which Tube Fitting is Best for Your Job?



If you connect copper, aluminum, steel, stainless steel or plastic tubing . . . if your job involves vibration, faster assembly, pressures, tube movement, shut-off valves, tubing tools . . . you have the answer for complete satisfaction on every job with IMPERIAL — industry's most complete line of tube fittings and tubing tools.



IMPERIAL HI-DUTY FITTINGS — Unsurpassed for speedy, low-cost assembly. Withstands vibration. No loose sleeves to contend with. No flaring.



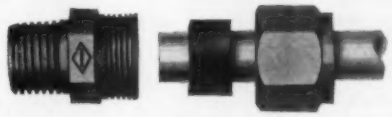
IMPERIAL J.I.C. 37° FLARE FITTINGS withstand high pressures and severe operating conditions. Furnished in Brass, Steel and Stainless Steel.



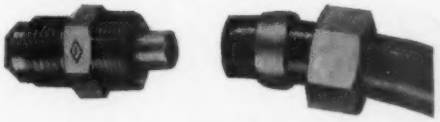
IMPERIAL S.A.E. FLARE FITTINGS — Both standard and heavy-duty types. Withstand severe tensile pull and high pressures.



IMPERIAL POLY-FLO FITTINGS used with polyethylene or other plastic tubing offer huge savings in time and simplify installation.



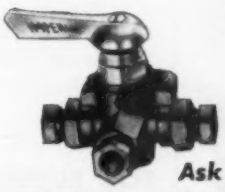
IMPERIAL FLEX FITTINGS — The tube coupling with the vibration and shock absorbing sleeve.



IMPERIAL FLEXIBLE HOSE and FITTINGS —For use where there is tube movement in lines for oil, grease, air, liquids, etc.



IMPERIAL Steel ERMETO FITTINGS — No flaring, threading, welding or soldering. Make safe connections that withstand high pressures and vibration.



IMPERIAL SHUT-OFF VALVES — 2, 3 & 4-way. HI-DUTY and standard types. Also Fluid Control Valves.

Ask for Catalog No. 3500

THE IMPERIAL BRASS MANUFACTURING CO.
512 W. Harrison St. Chicago 7, Ill.
In Canada: 334 Lauder Ave., Toronto, Ontario

IMPERIAL

Pioneers in Tube Fittings and Tubing Tools

For More Information Circle No. 612 on Inquiry Card—Page 17

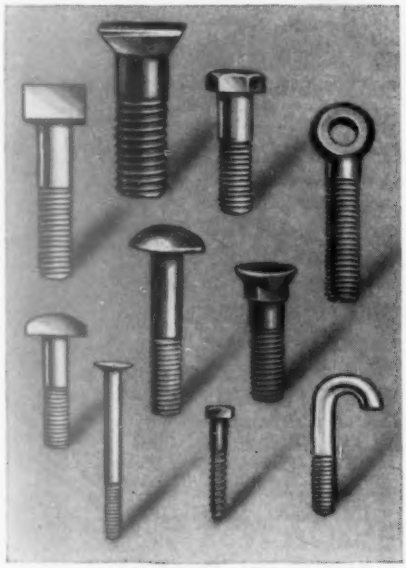
Threaded Specialties

lower cost
TEE BOLTS
by an
exclusive method



Among Pawtucket's many specialty products are these lower-cost tee-head bolts. Pawtucket's exclusive production method keeps cost low, dimensional accuracy unusually high and strength above standard.
Pawtucket tee head bolts are made in standard sizes ¼" and larger, or to your specifications. In any size, you can depend on a uniform Class 3 fit, if required.

All standard steels, stainless steels and non-ferrous metals, including Titanium



BETTER BOLTS SINCE 1882

PAWTUCKET
MANUFACTURING COMPANY
327 Pine St. • Pawtucket, R. I.
THE PLACE TO SOLVE YOUR BOLT PROBLEMS
T.M. REG.
"The Bolt Man"

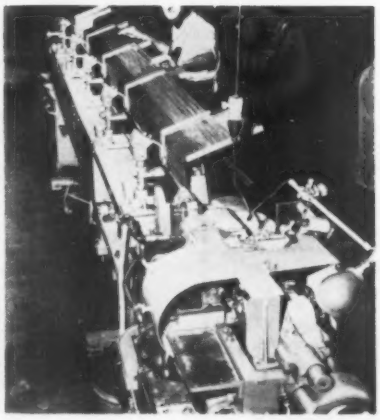
For More Information Circle No. 613 on Inquiry Card—Page 17

Life of Bits for Power Screw Drivers Doubled

One of the large automakers uses Phillips head screws by the millions in its assembly operations. Consequently, expenditures for bits for power screw drivers are more than inconsequential. It was found, that by switching to a Hy-Pro Phillips bit, costs could be cut substantially. Cases in point are assembly of sill-plates and garnish-moldings. On the former, the old bits drove 2561 screws before failing. The Hy-Pro bits drove an average of 5983 screws. On garnish-moldings, the comparative figures were 2935 screws and 5997 screws, respectively.

Circle No. 134 on Inquiry Card—Page 17

Magazine Loader Increases Screw Machine Output 170%

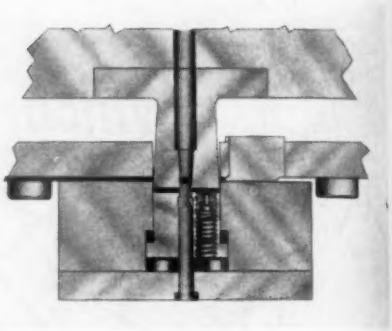


Automatic Voting Machine Co. of Jamestown, N. Y. forms and cuts voting machine door hinge rods on a No. 00 Brown & Sharpe automatic screw machine. The 3 17/64" rods were machined in a cycle time of 4½ seconds. The problem was keeping the screw machine fed with stock. It had to be manually reloaded with steel rod every three minutes. A Lipe-Rollway automatic magazine loading bar feed was installed. It keeps the machine stocked with rod for several hours and frees the operator for other duties. As a result, costs are down and production is up 170%.

Circle No. 135 on Inquiry Card—Page 17

FOR FURTHER INFORMATION ON PRODUCTS IN THIS ISSUE PLEASE USE INQUIRY CARD ON PAGE 17

Special Spring Plunger Saves $67 per Die



An eastern manufacturer was using homemade devices to break the oil seal and eject a part from a blanking die. Switching to ready-made Vlier spring plungers resulted in a saving of $67 on each die because of the ease with which they could be removed when the die was sharpened. To install or remove the plungers requires only a simple spanner type wrench. Adjustment is even simpler, requiring only a standard end wrench of the proper size.

Circle No. 136 on Inquiry Card—Page 17

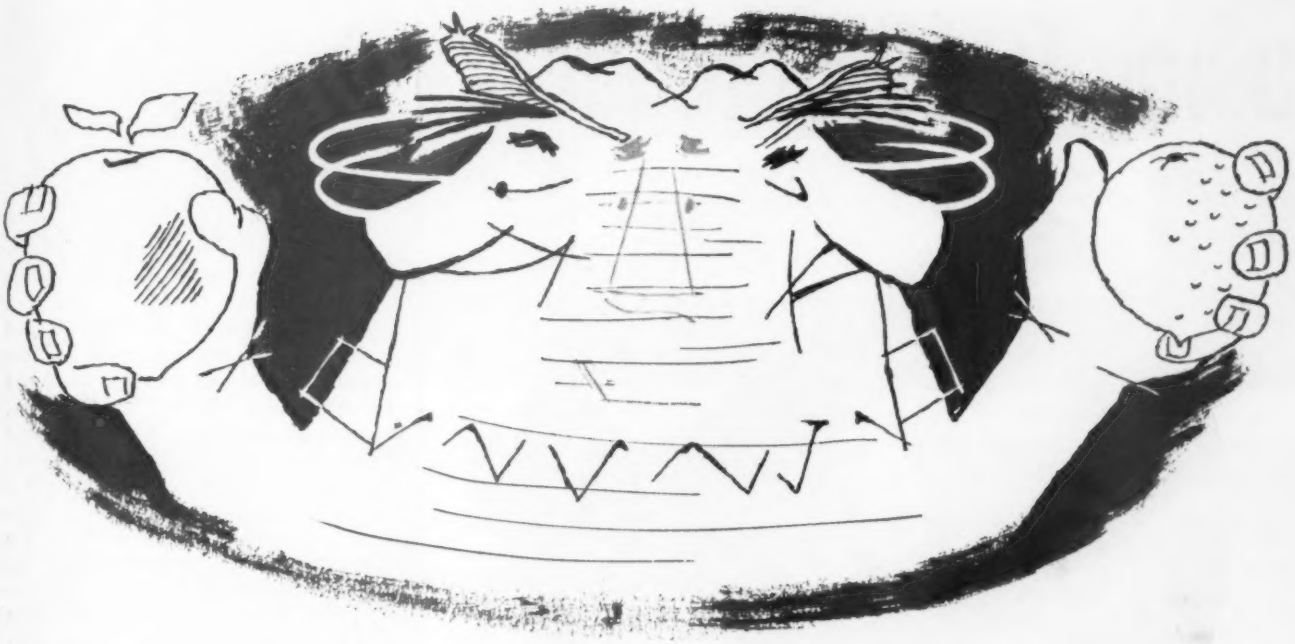
ATLAS
for quality and strength



ATLAS
SCREW & SPECIALTY CO.
450 BROOME STREET, DEPT. P
NEW YORK 13, N. Y.

For More Information Circle No. 614 on Inquiry Card—Page 17

YOU CAN'T REPLACE A PEACH WITH A LEMON!



says HY WHEELER, the sage of the socket wrench!

Of course, I don't claim *nobody* else makes good bearings—but you're *never in doubt* when you replace a Hyatt with another Hyatt!

Sure, you may save a little dough on "bargain" offbeat bearings—but take it from an oldtimer, *it don't pay in the long run!* Chances are you'll end up havin' to do the whole job over again before long, and with somebody sore at you, too! I figger it's a lot smarter to play safe and *hold out for Hyatts in the blue and yellow box.* When it comes to *quality,*



DISTRIBUTED BY DEALERS EVERYWHERE

there's no substitute for . . .

HYATT ROLLER BEARINGS

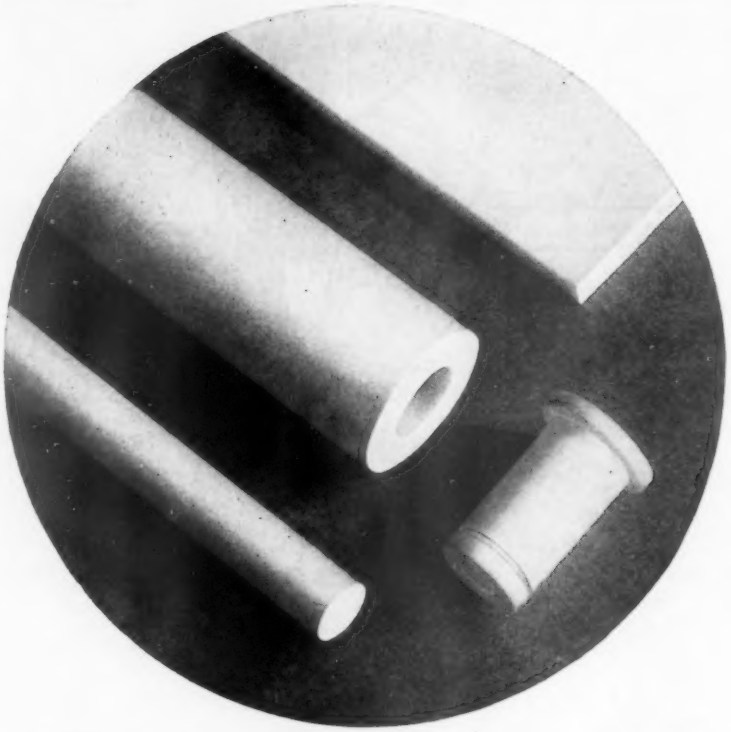
STRAIGHT BARREL TAPER

HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION • HARRISON, NEW JERSEY

A GENERAL MOTORS PRODUCT GM GENERAL MOTORS A UNITED MOTORS LINE UNITED SERVICE MOTORS

For More Information Circle No. 615 on Inquiry Card—Page 17

What to look for when using TEFLON® products



All Teflon isn't equal. Apart from its well known chemical inertness, there are these distinct differences that can affect performance and durability:

Non porosity . . . FLUOROFLEX®-T "electrical grade" rods, tubes and sheets are produced with no porosity. Conformance to major electrical and physical properties is *certified.** This assures you reliable operation in even the most critical low loss applications.

Dimensional Stability . . . Increased resistance to elongation is offered you by "mechanical grade" FLUOROFLEX-T . . . which is now available in extruded rods and tubes

Machinability . . . Stress relieving of all FLUOROFLEX-T products means uniform parts, easier machining, and fewer rejects.

Product Quality . . . Available in rods, sheets and tubes, in mechanical parts to your specification, in R-3800 hose assemblies, all FLUOROFLEX-T products have this in common — fabrication under a quality control system approved by the USAF under MIL-Q-5923.

Send for details and for quotations on your needs.

*Copies of test reports on file available on request.

®Fluoroflex is a Resistoflex registered trade mark for products from fluorocarbon resins. Teflon is the DuPont registered trade mark for its tetrafluoroethylene resin.

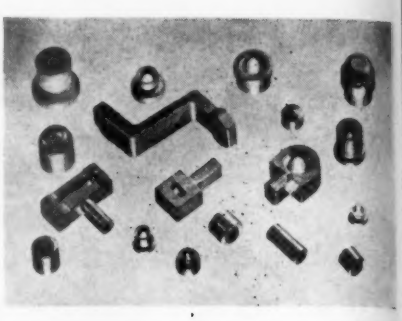
RESISTOFLEX

CORPORATION • Belleville 9, New Jersey

Warehousing Distributors: Colonial Kolonite Company, Chicago, Ill.
Western Fibrous Glass Products Co., Los Angeles, Cal.

For More Information Circle No. 616 on Inquiry Card—Page 17

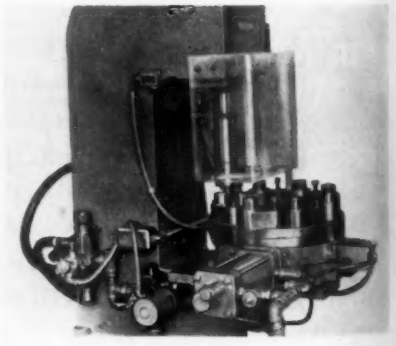
Sintered Metal Parts Improve Operation Of Gas Meters



To improve dependability and insure sustained accuracy of the displacement gas meters produced by American Meter Co., Erie, Pa., machined bearings were replaced by sintered bronze. So far 19 parts are being made of the sintered bronze alloy. Result; meter operation is improved and maintenance is minimized. Also, American Meter has been able to increase production and at the same time find that the cost of parts has been considerably reduced.

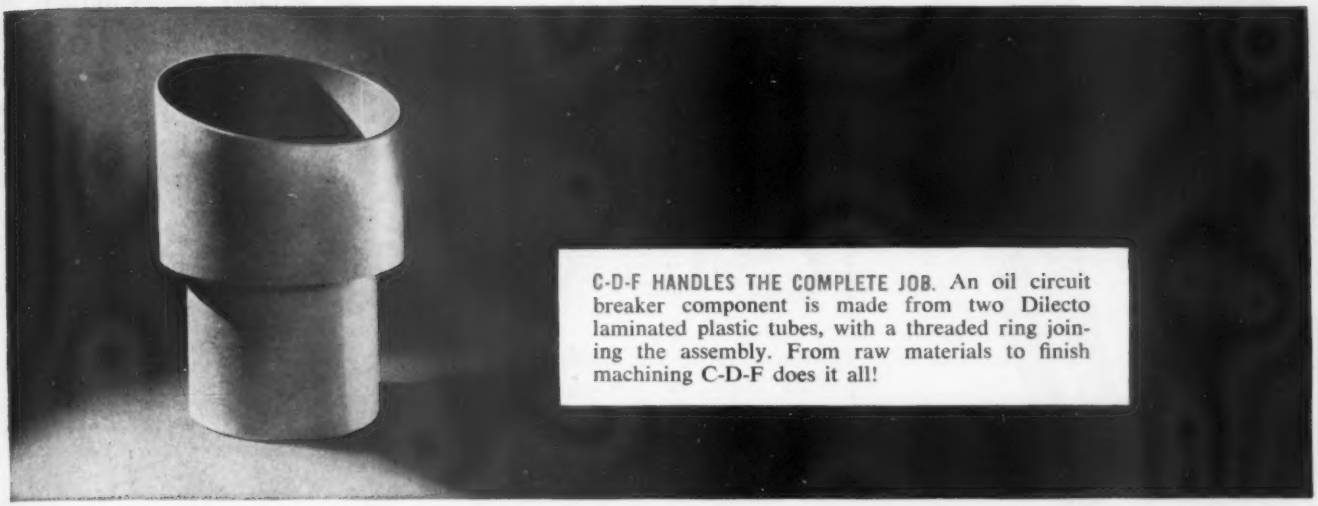
Circle No. 137 on Inquiry Card—Page 17

Press Attachment Hikes Parts Output 50%

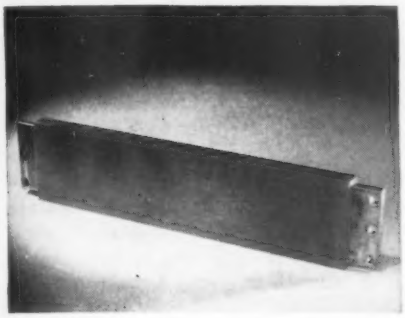


One of the "big three" auto companies used to press together two parts of a steering knuckle in a standard press. Production rate was 1200 pieces per hour and there was danger of injury to the operator. The company added an 8-station Air-Hydraulics index table to the press. Production is now up 50% to 1800 pieces per hour. The operator need only load pieces onto the index table; operation from there on is entirely automatic. A transparent guard over the press all but completely eliminates chance for injury to the operator.

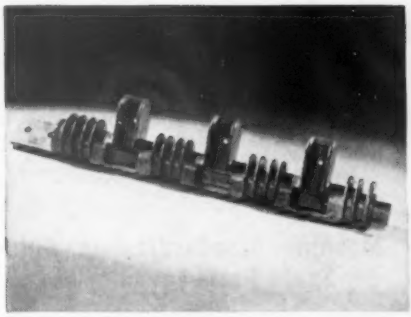
Circle No. 138 on Inquiry Card—Page 17



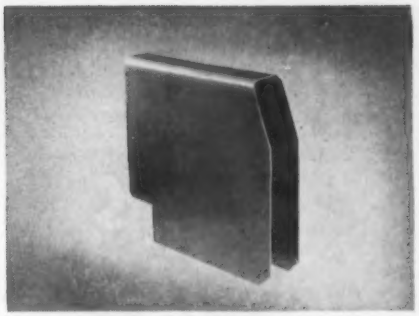
C-D-F HANDLES THE COMPLETE JOB. An oil circuit breaker component is made from two Dilecto laminated plastic tubes, with a threaded ring joining the assembly. From raw materials to finish machining C-D-F does it all!



C-D-F KNOWS HOW TO MACHINE PLASTICS. A bus bar gets a covering of molded Dilecto over copper supplied by the customer. The plastic ends are skillfully trimmed on a smooth saw.



C-D-F MOLDS MANY SPECIALTIES. This shaft insulator for a circuit breaker is molded from C-D-F's cloth-based industrial thermosetting plastic, Celoron. Note complexity of mold, clean detailing.



C-D-F USES MODERN METHODS. Large quantities of arc chute barriers are made from paper-based Dilecto. Operations include pressing, cutting, post-forming and trimming.

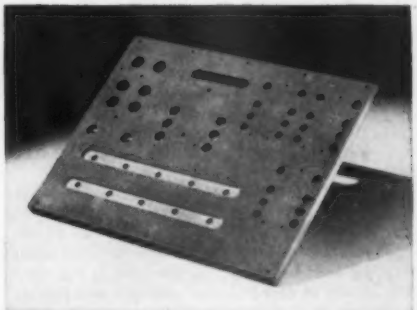
Dependable equipment relies on C-D-F insulation!



C-D-F OFFERS UNIQUE MATERIALS. This contact shaft for an air circuit breaker is another example of molded C-D-F Celoron used in switchgear because of its high impact strength.



C-D-F IS A SKILLFUL ASSEMBLER. Made from Grade C rolled Dilecto tubing, these pots are turned, bored, slotted. Then a macerated plastic end is inserted and arc resistant varnish finish applied.



C-D-F UNDERSTANDS THE ELECTRICAL INDUSTRY'S NEEDS. Precisely machined to close tolerances, Dilecto panel boards guarantee dependable insulation, help designers save space.

See our catalog in Sweet's Design File for basic product data and sales offices. Write for detailed information, or send us your print for quotation.

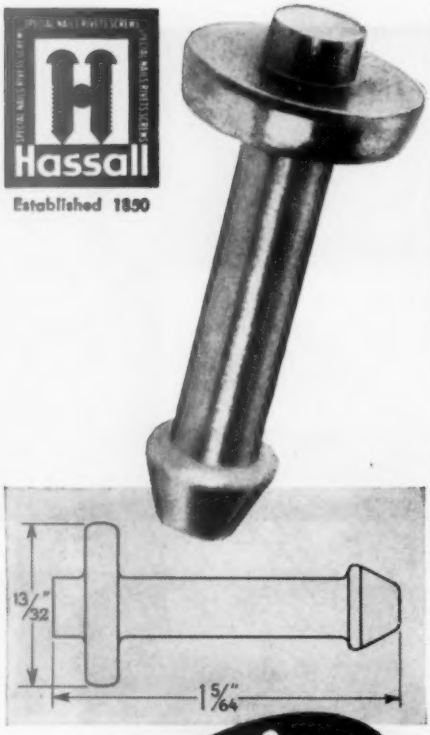
CDF Continental-Diamond Fibre

CONTINENTAL-DIAMOND FIBRE COMPANY

NEWARK 41, DELAWARE

For More Information Circle No. 617 on Inquiry Card—Page 17

Hassall
Established 1850



This cost:

SCREW MACHINE	$14.00 per thousand
COLD HEADED	$5.20 per thousand
SAVING	$8.80 per thousand

How about your fasteners or small parts? Have you had an estimate from HASSALL?

This is a typical example of how HASSALL saves thousands of dollars for cost-conscious manufacturers in hundreds of industries. This part is made in one piece by cold heading . . . the part is not only lower in cost but also stronger and just as accurate. Savings amount to $8.80 per thousand and this manufacturer used hundreds of thousands a year!

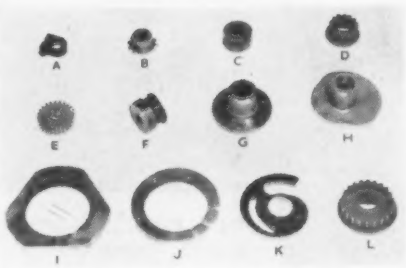
Perhaps your parts can be made by this better, lower cost method. Send samples or sketches of your parts for a prompt, $ $ $ saving quotation.

HASSALL SERVICE

- Send for 3 color decimal equivalent wall chart.
- On request, our 36-page catalog.

JOHN HASSALL, INC.
P. O. Box 2268 Westbury, Long Island, N. Y.
For More Information Circle No. 657 on Inquiry Card—Page 17

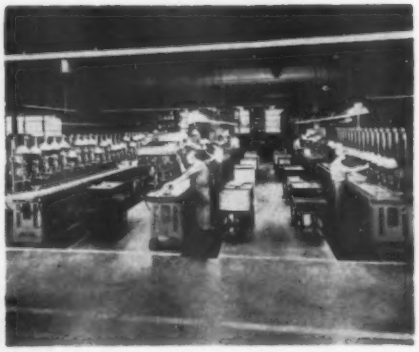
Iron Powder Parts Save Up to 50%



Whitin Machine Works, Whitinsville, Mass., a leading maker of textile machines, uses more than 200 different parts of iron powder, produced by National Radiator Co. and fabricated by Presmet Corp., Worcester, Mass. Where applicable, sintered iron bearings have shown savings of as much as 50%. Parts such as sprockets or pulleys show still higher savings.

Circle No. 139 on Inquiry Card—Page 17

Machine Standardization Cuts Spare Parts Inventories



By standardizing its drill press room with 87 Delta drills, A. Dalkin Co., Chicago manufacturers of measuring valves, aircraft parts, etc., has simplified stocking of machine tool spare parts. It has also enabled its operators to handle not one but all drill presses without need of costly briefing time. It makes possible an "assembly line" system of machining parts that need a number of operations, enabling the parts to be slid along work tables from one drill to the next.

Circle No. 140 on Inquiry Card—Page 17

QUICK—CONVENIENT
Use the Inquiry Card on Page 17 for additional information on any product

Air Cylinder Speeds Output From Shears, Cuts Fatigue

A manufacturer of sheet metal products found that addition of a relatively low cost accessory to its shear could increase output and cut operator fatigue. In addition, it



permitted the shear to be run by a woman and freed a man for heavier work. Putting a Schrader air cylinder on the shear made it operate with a light touch of a girl's foot. Formerly, it took the entire weight of a man to trip the foot treadle on the machine.

Circle No. 141 on Inquiry Card—Page 17

GOOD AND FAST!

That's how a rivet fastens — and that's what Milford service is—from 5 Milford plants and 20 Milford offices. Try us and see for yourself — soon!

THE MILFORD RIVET & MACHINE CO.

Plants: Milford, Conn.; Norwalk, Calif.; Elyria, Ohio; Aurora, Ill.; Hatboro, Pa.
Offices: Atlanta, Chicago, Cleveland, Detroit, Fort Worth, Indianapolis, Newark, New York, Pittsburgh, Racine, St. Louis, St. Paul, San Francisco, Seattle; Norwalk, Calif.; Stratford, Conn.; Charlotte, N. C.; Seneca Falls, N.Y.; Jenkintown, Pa.; Westwood, Mass.

Headquarters for RIVETS
Tubular, split and special cold-formed
and Rivet-setting Machines

For More Information Circle No. 618 on Inquiry Card—Page 17

Precision is the word for finest "O" Ring Seals!

world's largest exclusive producer



"O" RING HYDRAULIC PACKINGS ®

• Aircraft quality • All military approvals • All commercial and industrial standards • Greatest size range available • Tough, compression-molded, rigidly inspected — finest "O" Rings made!



Dyna-Seal ®

• For positive face-to-face sealing under bolt heads, rivets, flanges • No grooves necessary • Seal up to 10,000 PSI—oils, gasoline, many chemicals and gases • Minimum fabrication and assembly costs.

Sales Engineers as near as your telephone—ready and able to solve sealing problems. Send us your inquiries.

FREE—Write for our Handbooks of "O" Ring and Dyna-seal data.



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614 Central Ave., East Orange, N. J.

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Shields Rubber Co.
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Smith Rubber Co., 1052 Clifford Ave.
P. O. Box 1002, Rochester 3, N. Y.

J. V. Tripoli & Co., Inc.
223 Erie St., Buffalo 2, N. Y.

Reed Rubber Co.
3115 Washington Ave., St. Louis 3, Mo.

Miller Sales Co.
3835 Shady Oak Rd., Hopkins, Minn.

Universal Aviation Supply
926 West Second St., P. O. Box 938
Wichita, Kan.

Southwestern Packing & Rubber Co.
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National Precision Products Co.
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114 E. 6th St., Tulsa 19, Okla.

MANUFACTURER'S AGENTS

Industrial Sales & Engineering Co.
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Houston 2, Tex.

Industrial Sales & Engineering Co.
419 Mayo Bldg., Tulsa 3, Okla.

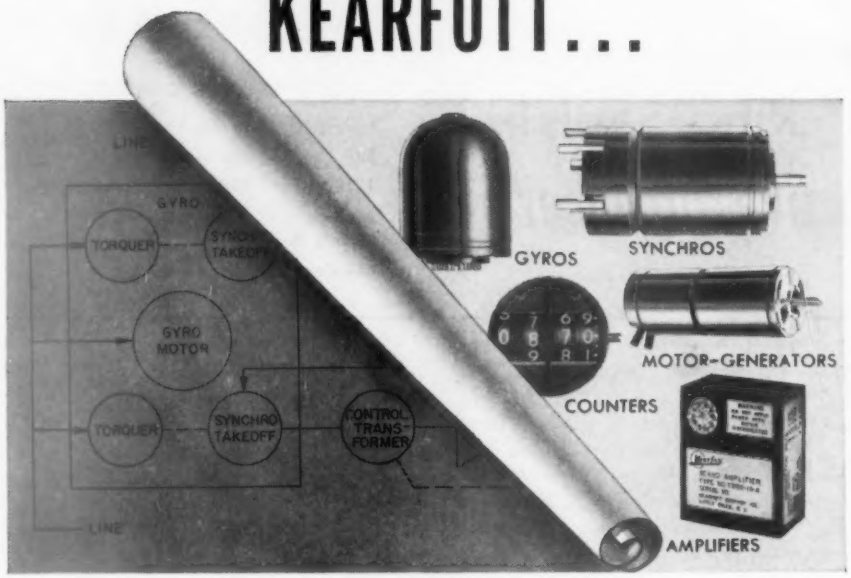
Precision Rubber Products CORPORATION

"O" Ring and Dyna-seal Specialists ®

Dept. P, Oakridge Drive, Dayton 7, O. Canadian Plant at: Ste. Thérèse de Blainville, Québec

For More Information Circle No. 619 on Inquiry Card—Page 17

KEARFOTT...



from problem through production

Engineering ability and production facilities are as important to you as the characteristics of the components you select. After components are approved, you are dependent upon your supplier . . . dependent upon him for engineering assistance . . . dependent upon his ability to produce quality products in the required quantities.

Many of the servo motors, synchros, gyros and systems in use today had their inception on the drafting boards of Kearfott's engineers. This is proof of Kearfott's engineering ability. Kearfott offers complete engineering service before, during and after the purchase of a component.

A modern building, over 430,000 square feet of floor space, equipped with the latest in precision machinery, manned by 3,000 highly skilled specialists, is your assurance of Kearfott's ability to produce.

Yes, Kearfott is a dependable source of supply. If you have a design problem or require a special or standard component, contact Kearfott.

KEARFOTT COMPONENTS INCLUDE:

Gyros, Servo Motors, Synchros, Servo and Magnetic Amplifiers, Tachometer Generators, Hermetic Rotary Seals, Aircraft Navigational Systems, and other high accuracy mechanical, electrical and electronic components.

Send for bulletin giving data of components of interest to you.

Kearfott

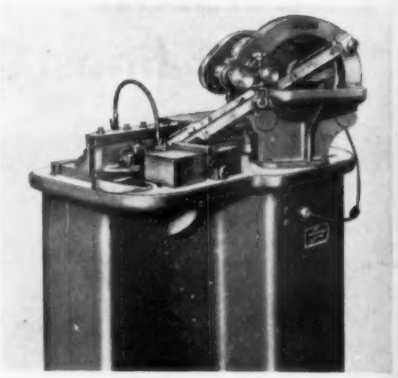
A SUBSIDIARY OF GENERAL PRECISION EQUIPMENT CORPORATION

KEARFOTT COMPANY, INC., LITTLE FALLS, N. J.

Sales and Engineering Offices: 1378 Main Avenue, Clifton, N. J.
Midwest Office: 188 W. Randolph Street, Chicago, Ill. South Central Office: 6115 Denton Drive, Dallas, Texas
West Coast Office: 253 N. Vinedo Avenue, Pasadena, Calif.

For More Information Circle No. 620 on Inquiry Card—Page 17

Feeding System Boosts Thread Rolling Output 75%



A manufacturer of small threaded parts increased efficiency by 75% with a new Model A-190-R Hartford special thread rolling machine. The increase is due to a new feeding system which employs a rotary type hopper. The hopper produces longer runs between refills. Another feature of the machine is that feed rails are longer to accommodate more pieces and to provide more time for the feed clearing wheel to reject imperfect blanks which cause "dry runs." Production rate has been boosted to 230-250 pieces per minute.

Circle No. 142 on Inquiry Card—Page 17

Air Cylinder Increases Output From 200/Hour to 500/Hour



A New England pen manufacturer found that by proper utilization of air cylinders it could increase over-all production by 150% without increasing the number of workers on its payroll. A typical application of Mead units is assembly of a draw collet tube, barrel collet, spring and magazine bushing. Formerly, the bushing was threaded and assembled by hand. Now it is forced into the groove in the collet by means of a Mead air cylinder. This particular operation has been stepped up from 200 assemblies per hour to 500 per hour by using air cylinders.

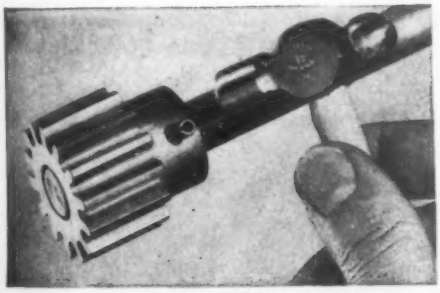
Circle No. 143 on Inquiry Card—Page 17

Where can you use this simple fastener?

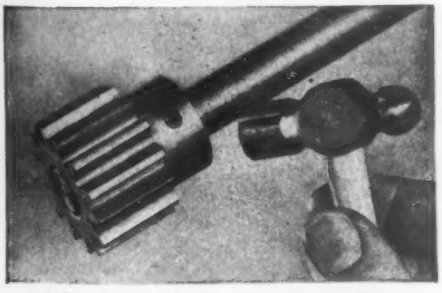


Rollpin is driven into holes drilled to normal production-line tolerances.

No threading, peening or precision drilling with ROLLPIN



It compresses as driven.



Rollpin fits flush . . . is vibration-proof.

Rollpin is the slotted tubular steel pin with chamfered ends that is cutting production and maintenance costs in every class of industry.

This modern fastener drives easily into standard holes, compressing as driven. Its spring action locks it in place—regardless of impact loading, stress reversals or severe vibration. Rollpin is readily removable and can be re-used in the same hole.

* * *

If you use locating dowels, hinge pins, rivets, set screws—or straight, knurled, tapered or cotter type pins—Rollpin can cut your costs. Mail our coupon for design information.



Dept. R16-615, Elastic Stop Nut Corporation of America
2330 Vauxhall Road, Union, New Jersey

Please send me the following free fastening information:

☐ Rollpin bulletin
☐ Elastic Stop Nut bulletin
☐ Here is a drawing of our product. What fastener would you suggest?

Name _____ Title _____

Firm _____

Street _____

City _____ Zone _____ State _____

For More Information Circle No. 621 on Inquiry Card—Page 17

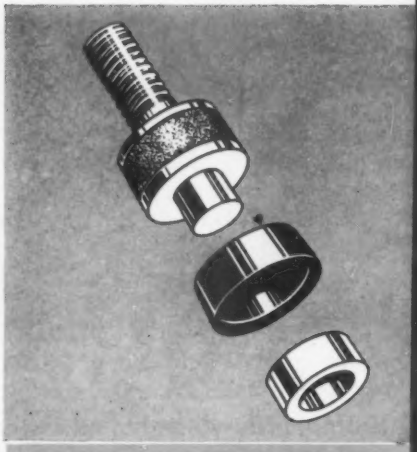
How IPC helps Crosman Arms put power in a pellet . . .



Realistic Crosman Pellguns are pneumatic and gas operated . . . fire small powderless pellets at muzzle velocities up to 700 feet per second.

High compression air or gas power is fed into the Crosman gun or rifle . . . held for trigger action by IPC cup packings. In recent tests this IPC cup packing has withstood and held pressures of 3000 psi and, after repeated use, still operates smoothly and without wear.

Whatever your packings problem, IPC engineers will help you determine the best material and the most effective design. Standard and special types are available in leather or synthetic rubber. *Write today!*





This synthetic cup packing, used in the Crosman Pellgun, is made of Buna N compound and has a high durometer.

IPC PACKINGS

IPC *serves industry with cup, flange, U and Vee packings, oil seals and custom packings.*



Cup Flange U Vee Oil Seals

INTERNATIONAL PACKINGS CORPORATION

A subsidiary of Graton & Knight Company

Bristol, New Hampshire

P2

For More Information Circle No. 622 on Inquiry Card—Page 17

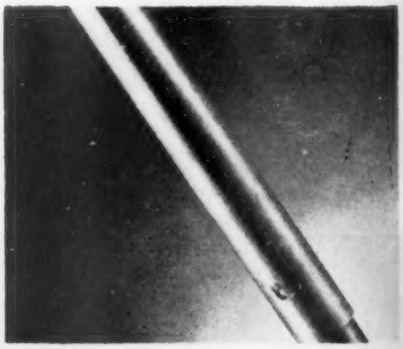
Assembly Costs Cut With Cross-Recessed-Head Screws



Sonotone Audiometer production has been improved with Phillips cross-recessed-head screws. They not only speed production but are more suitable to functional design, with resultant economies all around. The anodized finish of the Audiometer panel could be easily marred and the piece rejected with slippage of screwdrivers in ordinary cross-slotted screws.

Circle No. 144 on Inquiry Card—Page 17

Punching Instead of Milling Cuts Cost by 80%



One well known manufacturer found it could reduce the cost substantially of a telescoping handle for a hydraulic pump. The handle was formerly purchased with an elongated slot milled in it. A supplier, the Hartford Machine Screw Co., devised a method whereby this slot could be punched at one-fifth the cost of milling it.

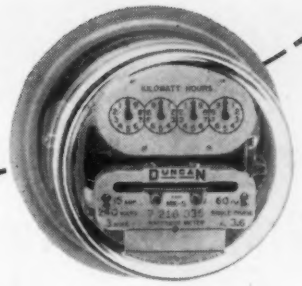
Circle No. 145 on Inquiry Card—Page 17

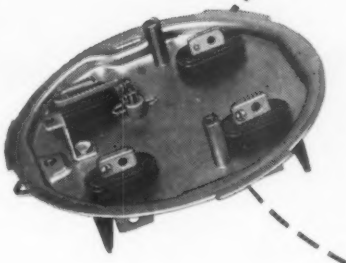
Production per Grind Boosted 10 Times with Carbide Inserts

By switching to carbide insert-type holders at 2 stations on rough

(*Please turn to page* 190)

want an ACCURATE READING
on the Value of K-K Plastic Parts?





Here's the *old* meter base, formerly used by Duncan Electric. It's a hand-assembled composite—aluminum stampings and tapped rods with moulded insulators. Many parts—much handwork—high cost!



And here's the Kurz-Kasch-moulded improvement—a 1-piece moulding with integrally moulded mounting studs and insulating bosses, with machine assembled inserts. Great improvement in corrosion and electrical resistance—less assembly—*an appreciable reduction in costs!*

How's that for a big step forward? The Duncan Electric Company finds that Kurz-Kasch moulded plastics make a fine product even better, at lower cost—and you can't improve a deal like that. Why not gamble a three cent stamp on the chance of equally pleasant results for your product? We've been serving as the moulded plastics production department of many of America's best manufacturing names for many years, and can give you the same satisfaction. Write—about *any* thermosetting parts.

KURZ-KASCH

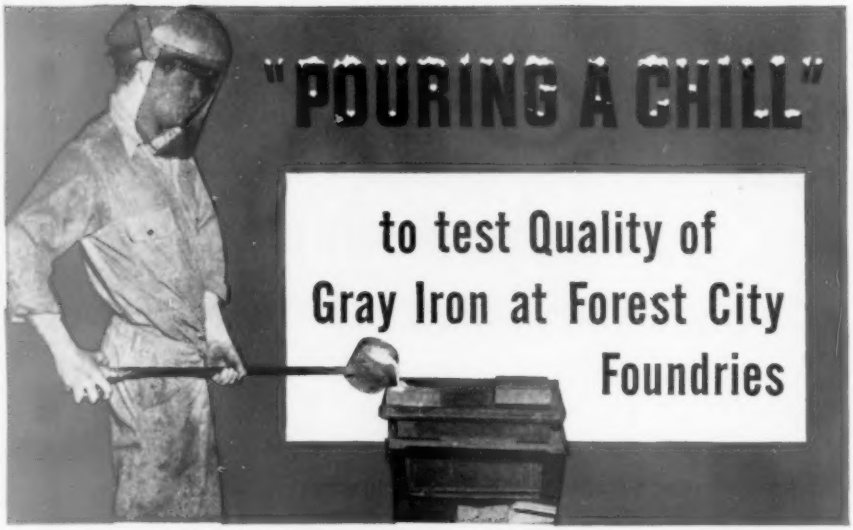
Specialists in Thermo-Setting Plastics for 37 years

Kurz-Kasch, Inc. • 1431 S. Broadway • Dayton 1, Ohio

BRANCH SALES OFFICES: New York, *Mt. Vernon MO 4-4866* • Rochester, *Hillside 4352* • Chicago, *Merrimac 7-1830* • Detroit, *Jordan 6-0743* • Philadelphia, *Hilltop 6-6472* • Dallas, *Logan 5234* • Los Angeles, *Richmond 7-5384* • St. Louis, *Parkview 5-9577* • Atlanta, *Exchange 0414* • Toronto, *Riverdale 3511*.

EXPORT OFFICE: 89 Broad St., New York City, *Bowling Green 9-7751*.

For More Information Circle No. 623 on Inquiry Card—Page 17



● Are you getting the quality of gray iron you want in your castings? You can depend on Forest City Foundries to meet your exact requirements.

Among the many tests and controls that assure the high quality of Forest City castings are the two illustrated here.

Frequent pourings of small castings known as "chill wafers", as shown above, are made to determine beyond question the quality of iron as it comes from the cupola. Each wafer then is measured for depth of white iron, and control is accomplished by variation of the amount of inoculant. The chart below shows the type of record that is kept, right at the cupola.

CHILL CONTROL SHEET

Date 8/12/53 Cupola No. 2 Taken by R. H. E.

Time	Temperature	Silicon Additions (Feeder Setting)	Chill 1/32"	Hardness Brinell Bar	Chemical Analysis Carbon	Silicon
7:15	2800	40-50	7	187	3.45	2.25
7:30	2830	40-50	11	207	3.43	2.05
7:45	2750	60-60	9			
8:00	2740	60-40	8	192		
8:15	2740	55-55	8			
8:30	2750	50-50	10	202	3.34	2.15
8:45	2750	50-50	10			
9:00	2750	50-50	12	192		



Control of chemical composition is important to assure uniformity of casting hardness and strength, but modern foundries must also control the structure of the iron as well. Here the metallurgist is examining a polished sample of iron to be sure that the structure conforms to the desired pearlite iron specification. The spectrophotometer at the technician's left is used for many accurate and rapid analyses of alloys every day.

●

To see how you can profit by having your gray iron castings made by Forest City Foundries, send us sketches, blue prints or samples for quotations.

The FOREST CITY FOUNDRIES Company

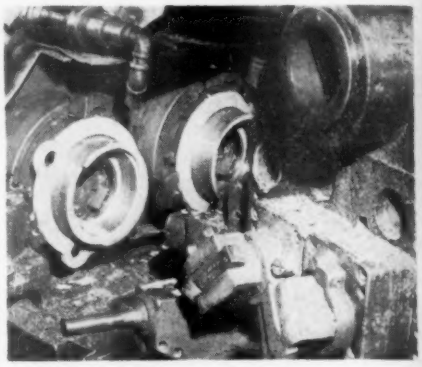
2800 WEST 27TH STREET • CLEVELAND 13, OHIO

TELEPHONE TOWER 1-5040

For More Information Circle No. 624 on Inquiry Card—Page 17

(*Continued from page* 188)

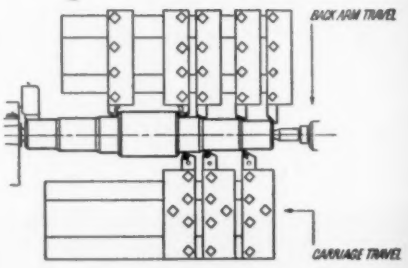
and finish machining operations of tractor final drive pinion bearing cages, a mid-western road machinery builder jumped production



from an average of 40 to 400 pieces per grind. As a result, the firm has reduced tool cost per piece from $.019 to $.0034. The work is done on a 25 hp 2-spindle Potter & Johnson automatic turret lathe with the Wesson Co. carbide inserts and tips used on 4 positions at stations No. 2 and No. 4.

Circle No. 146 on Inquiry Card—Page 17

Switch to Carbide Insert Tool Holders Saves $13,550/Year

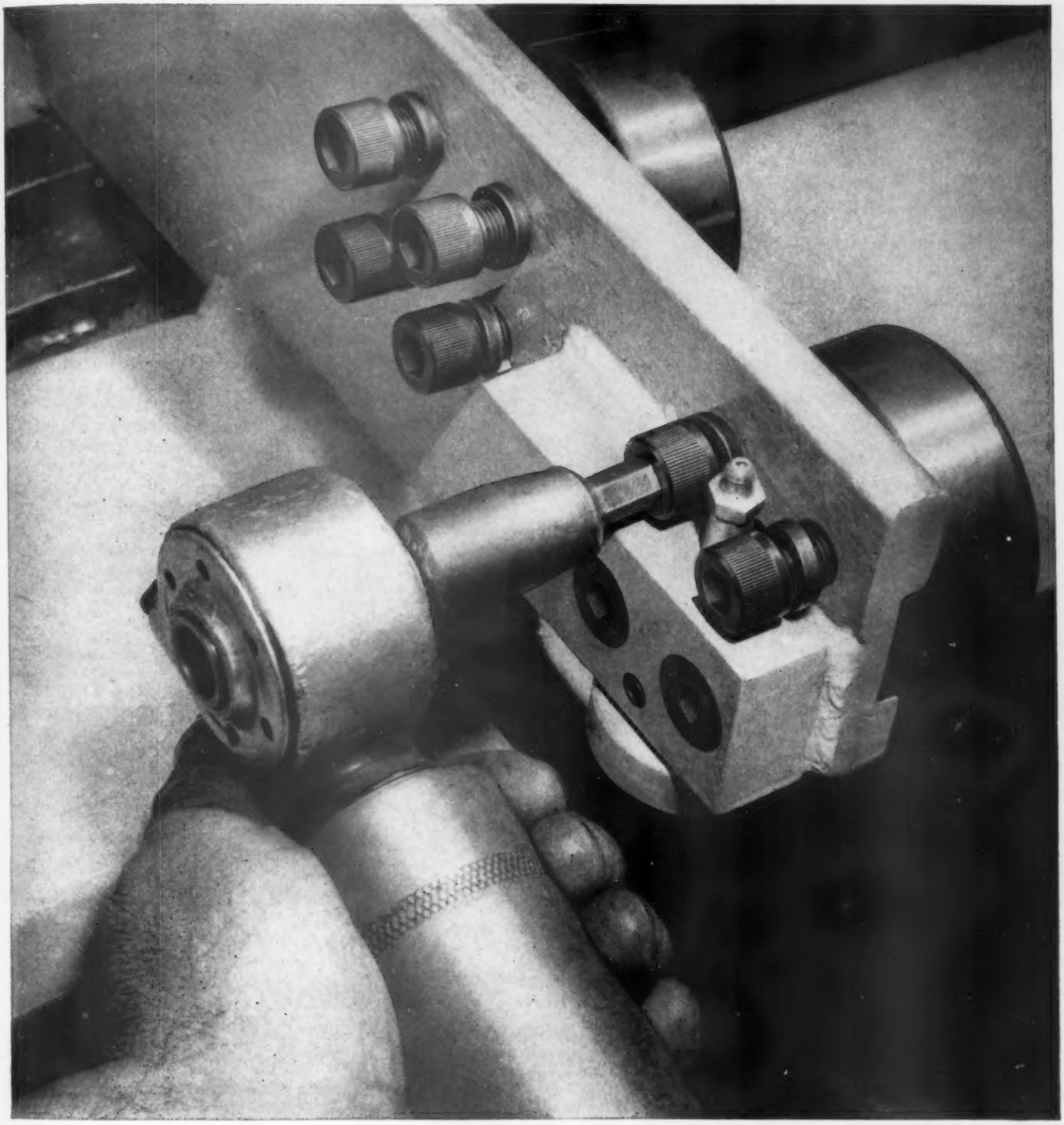


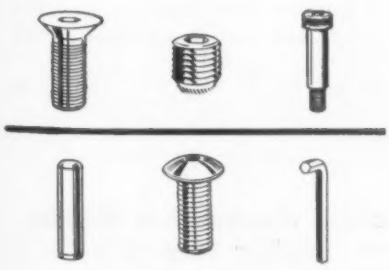
A large builder of road machinery recently switched from conventional brazed carbide tipped tools to mechanical held carbide insert tool holders for rough turning of heavy duty steel axle shafts. The company is now using Wesson band-type Multicuts designed specifically for the facing, plunge feed turning, and chamfering operations performed on the shafts with two 16-inch Fay lathes. As a result, output per tool grind has been increased from 30 pieces to 100 pieces, and tool costs have been reduced $13,550 per year.

Circle No. 147 on Inquiry Card—Page 17

Want more Facts on any of the products shown in this issue? Get them quickly and easily by using the INQUIRY CARD PAGE 17

UNBRAKO AT WORK

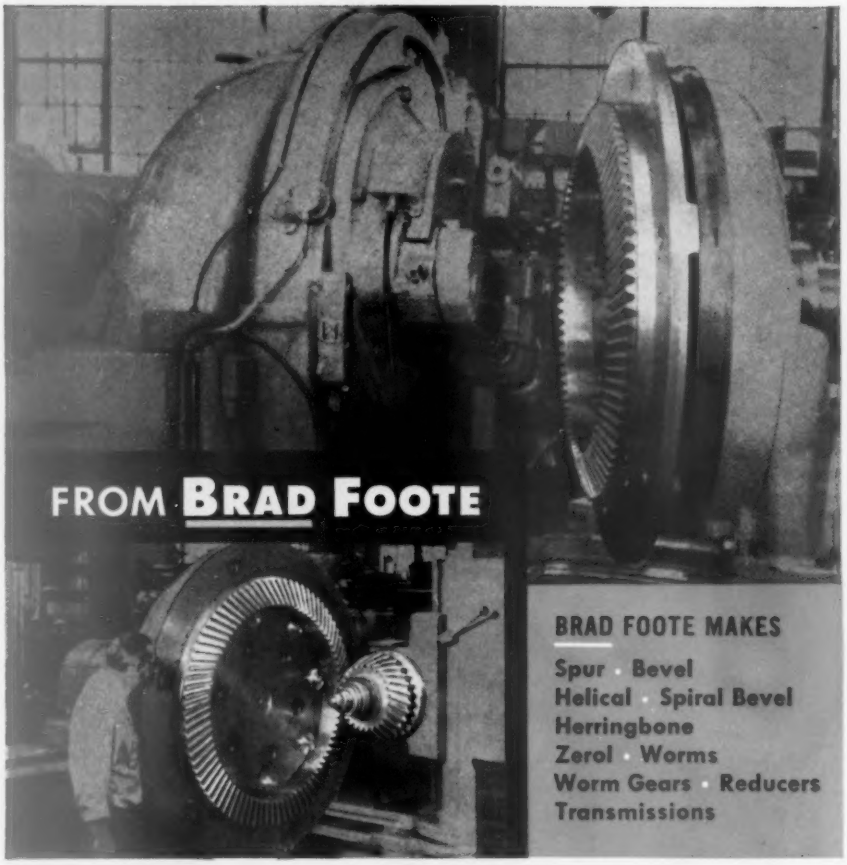




UNBRAKO SOCKET HEAD CAP SCREWS provide additional safety and increased efficiency on industrial lift trucks. Sixteen of them are used to fasten the side thrust fork carriage rollers which reduce the stresses caused by off-center loading. These standard UNBRAKOS have heads forged for strength, and sockets of uniform depth and size for strength and maximum torque in wrenching. Fillets and threads are formed to provide continuous grain flow throughout the screw. For the UNBRAKO story, see your authorized industrial distributor. Or write STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

UNBRAKO® SOCKET SCREW DIVISION SPS JENKINTOWN, PENNSYLVANIA

For More Information Circle No. 625 on Inquiry Card—Page 17



BETTER SPIRAL BEVEL GEARS—UP TO 66″

• At BRAD FOOTE there is a determination to spare no expense in providing complete facilities to our customers. The two new machines above illustrate this policy.

• The new gear cutting machine above is one of a very few installed in this country. It permits BRAD FOOTE to cut spiral bevel gears with a pitch diameter up to 66″ in a 10 to 1 gear ratio with face widths up to 10″. These better spiral bevel gears have the same advantage of localization of tooth bearing surfaces found in the best smaller curved-tooth bevel gears.

• A new Angular tester, also shown, tests these gears and spur, helical and internal gears up to 90″ in diameter.

• Add to complete facilities close attention to details, careful inspections, strict adherence to specifications and unsurpassed experience in gear cutting, and you get the answer to BRAD FOOTE quality.

• BRAD FOOTE'S facilities are at your disposal whether you need one gear or scheduled quantities. We would like to discuss your requirements or quote on your specifications. Your inquiry will receive prompt service.



BRAD FOOTE
GEAR WORKS, INC.

1309 South Cicero Avenue • Cicero 50, Illinois
Bishop 2-1070 • OLympic 2-7700 • TWX: CIC-2856-U

subsidiaries

AMERICAN GEAR & MFG. CO.
Phone: Lemont 920
Lemont, Illinois

PITTSBURGH GEAR COMPANY
Phone: SPaulding 1-4600
Pittsburgh 25, Pennsylvania

For More Information Circle No. 626 on Inquiry Card—Page 17

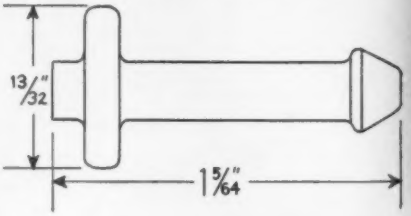
Cost of Ripping Operation Cut $2000 with 6″ Saw



Owners of a bonded warehouse in Baltimore effected considerable savings in time and money through use of 6″ Black and Decker power saws in a recent operation. The job consisted of enlarging storage racks to accommodate larger barrels; and the sawing required was primarily bevel-rip cutting. According to the job superintendent, the two saws "upped production at least 50%." He said, "We saved over $2000 by using them to rip those barrel racks."

Circle No. 148 on Inquiry Card—Page 17

$8.20 Per Thousand Saved With Cold Headed Part



A company using hundreds of thousands of a particular small part per year was paying $14.00 per thousand to have it made by screw machine. Turning to John Hassall, Inc., the firm found the fastener could be made, cold headed, for only $5.20 per thousand—a saving of $8.80 per thousand. As an "extra" dividend, it was also discovered that the new, one-piece, cold headed part was not only lower in cost, but stronger and just as accurate as the screw machine part.

Circle No. 149 on Inquiry Card—Page 17

Special Mandrel Cuts Machine Loading Time 90%

Alten Foundry and Machine Works Inc. of Lancaster, O. has the

(*Please turn to page* 196)



HOLO-KROME'S MODERN PACKAGING SLASHES YOUR HANDLING COSTS—

. . . all along the line!

From receiving room, to stock room, to production line, to finished product . . . at every step of the way through your plant, Holo-Krome's new packaging saves time and money!

ASSURES FASTER ORDER HANDLING Now, all 7/8" and 1" Socket Cap and Set Screws are packed in new TEN-PAK boxes . . . 1 1/4" and 1 1/2" Socket Cap Screws in ONE-PAK boxes!

GIVES TIGHTER INVENTORY CONTROL Your stockroom men can now take inventory of Holo-Krome products at a glance! New and smaller clearly labeled boxes are easier to stock and check . . . no lost and wasted screws on the job!

SCREWS ARE FULLY PROTECTED Holo-Krome wraps each TEN-PAK screw in heavy corrugated cardboard liners. Threads can't be damaged, finish can't be marred!

Companies using Holo-Krome products are reaping the benefits of these time-saving, cost-cutting advantages. YOUR COMPANY CAN TOO! Make your Holo-Krome Distributor prove to you how H-K's new packaging saves both time and money!

Call him right now!

For the finest in fasteners . . . the fastest service . . . the best in packaging . . . look to your Holo-Krome Distributor.

HK

HOLO-KROME

THE HOLO-KROME SCREW CORP. HARTFORD 10, CONN.

For More Information Circle No. 629 on Inquiry Card—Page 17

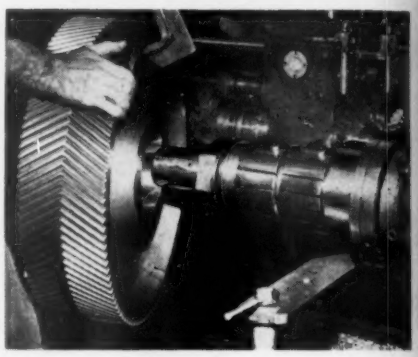


Address all communications to 770 Belleville Ave., New Bedford, Mass.

For More Information Circle No. 630 on Inquiry Card—Page 17

(*Continued from page* 192)

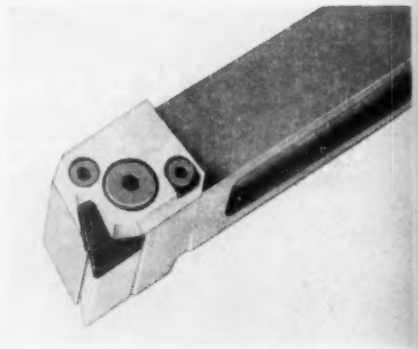
problem of loading heavy parts such as shovel gears 61″ in diameter on to equipment so that machining operations can be performed. It was



found that loading time could be cut 90% by using an Erickson mandrel. Alignment is automatic and operator fatigue is negligible compared with the old method of using arbors and arbor presses.

Circle No. 150 on Inquiry Card—Page 17

'Throw Away' Carbide Inserts Save Manufacturer $66.75 Daily



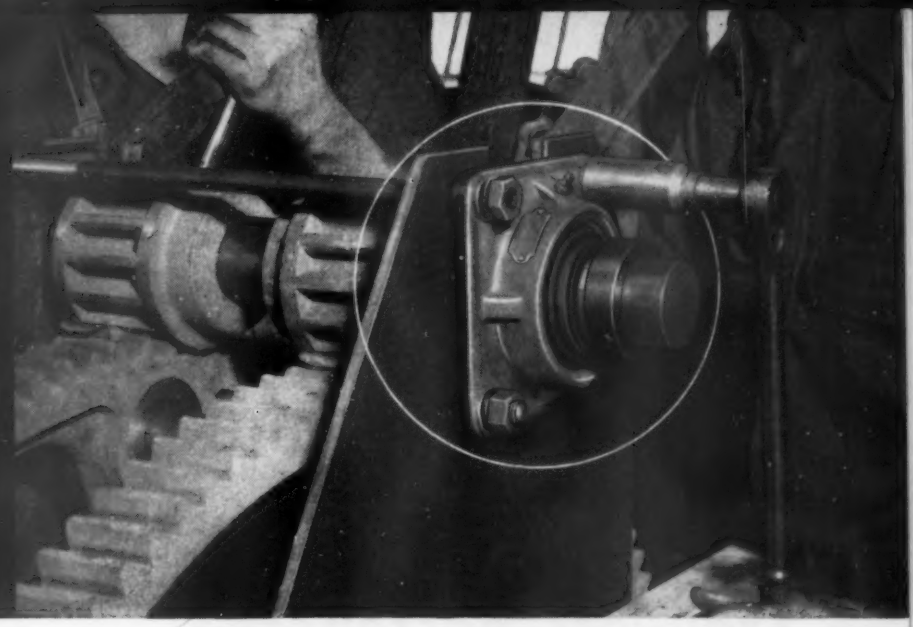
An auto manufacturer has replaced standard brazed carbide tools used on 6 vertical turret lathes with tool holders and "throw away" inserts made by Vascoloy-Ramet Corp. This change resulted in savings of $66.75 per day because the blanks need no grinding. As the insert wears away, it is indexed to a new cutting edge and after all cutting edges are used, it is discarded. The V-R Toolholder, with built in chipbreaker plate, eliminates expensive chipbreaker grinding in the inset.

Circle No. 151 on Inquiry Card—Page 17

Locating Defects Promptly Saves $1656.05 on Gears

Finishing operations on a certain precision gear cost a well known manufacturer $67.29 per gear. De-

(*Please turn to page* 198)



If assembly costs are lower

chances are

Fafnir has a bearing on it



Type LCJ Self-Aligning Ball Bearing Flange Cartridge equipped with Wide Inner Ring Mechani-Seal Bearing and Self-Locking Collar. For shaft diam.: ½" to 2 15/16".

The installation of a Fafnir Ball Bearing Flange Cartridge on the pinion shaft illustrated is being made with a socket wrench. No complicated blue prints, no costly machining, no time-consuming fitting and adjusting of bearing. Assembly costs have been cut without cutting corners.

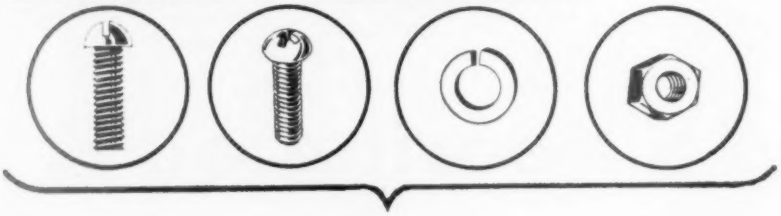
The use of a completely-housed ball bearing unit is only part of this cost-cutting operation. The *Fafnir Unit* offers additional cost savings. Its bearing inner ring is bored for a slip fit. The eccentric cam design of its inner ring and collar makes locking action positive with a twist of the wrist. No lock nuts or adapters are needed. No adjustments of any kind are necessary. The bearing can't be cramped or overloaded when mounting.

If you are looking for a way to cut assembly costs, maybe Fafnir can help you through better, more economical use of bearings. The Fafnir Bearing Company, New Britain, Conn.

MOST COMPLETE LINE IN AMERICA

FAFNIR BALL BEARINGS

Why Purchasing Agents of Leading Electronic Equipment Manufacturers Have Selected Allmetal Stainless Fasteners



Because they can count on getting the fasteners they need *straight from stock*—fast!—from the firm that manufactures more sizes and types than any other in the world.

They know that Allmetal is where many industry specials become standards — where deliveries are measured in hours rather than weeks.

But our huge stock isn't the only reason that more and more electronic equipment manufacturers are turning to Allmetal for their stainless fastener needs. Modern production facilities consistently meet the rigid quality requirements of the industry. These enlarged facilities are geared to produce the fasteners in demand by electronic equipment manufacturers—Phillips heads, pan heads, thin radio and small pattern nuts, captive screws, etc.

So when considering your stainless fastener needs, consider the firm selected by electronic equipment manufacturers. And don't forget, if you need custom specials to your exact specifications, our 26 years of specialization in tough alloys insure perfect fabrication. Write or phone your needs.

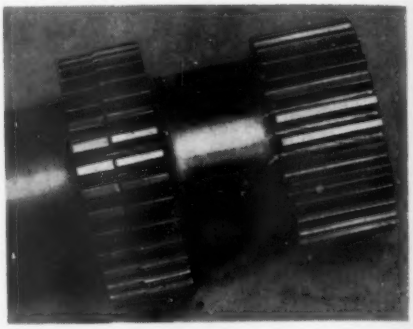
Allmetal's new condensed stock list catalog P190 is just off the press. Send for your free copy today.

MANUFACTURERS SINCE 1929
ALLMETAL
Screw Products Company, Inc.
821 Stewart Avenue
Garden City, New York

For More Information Circle No. 632 on Inquiry Card—Page 17

(*Continued from page* 196)

fects in the gear did not show up with ordinary inspection methods until these operations had been performed. By Magnaflux inspection,



the company located defects beforehand. As a result it saved the $67.29 finishing cost on 25 gears found defective in a lot of 262. Since the Magnaflux process cost about 10¢ per gear, net savings were $1656.05.

Circle No. 152 on Inquiry Card—Page 17

Automatic Device Slashes Grinder Downtime



Using a Cincinnati automatic grinding wheel balancing device, Emsco Mfg. Co. of Houston, Texas has upped production on its precision finish grinding operations by 10%. Whereas the machine operator formerly required 40-90 minutes to balance the wheel, he now does it in about 15 seconds leaving the remaining time for production. In addition Emsco reports greater wheel and diamond life resulting from use of the balancing device.

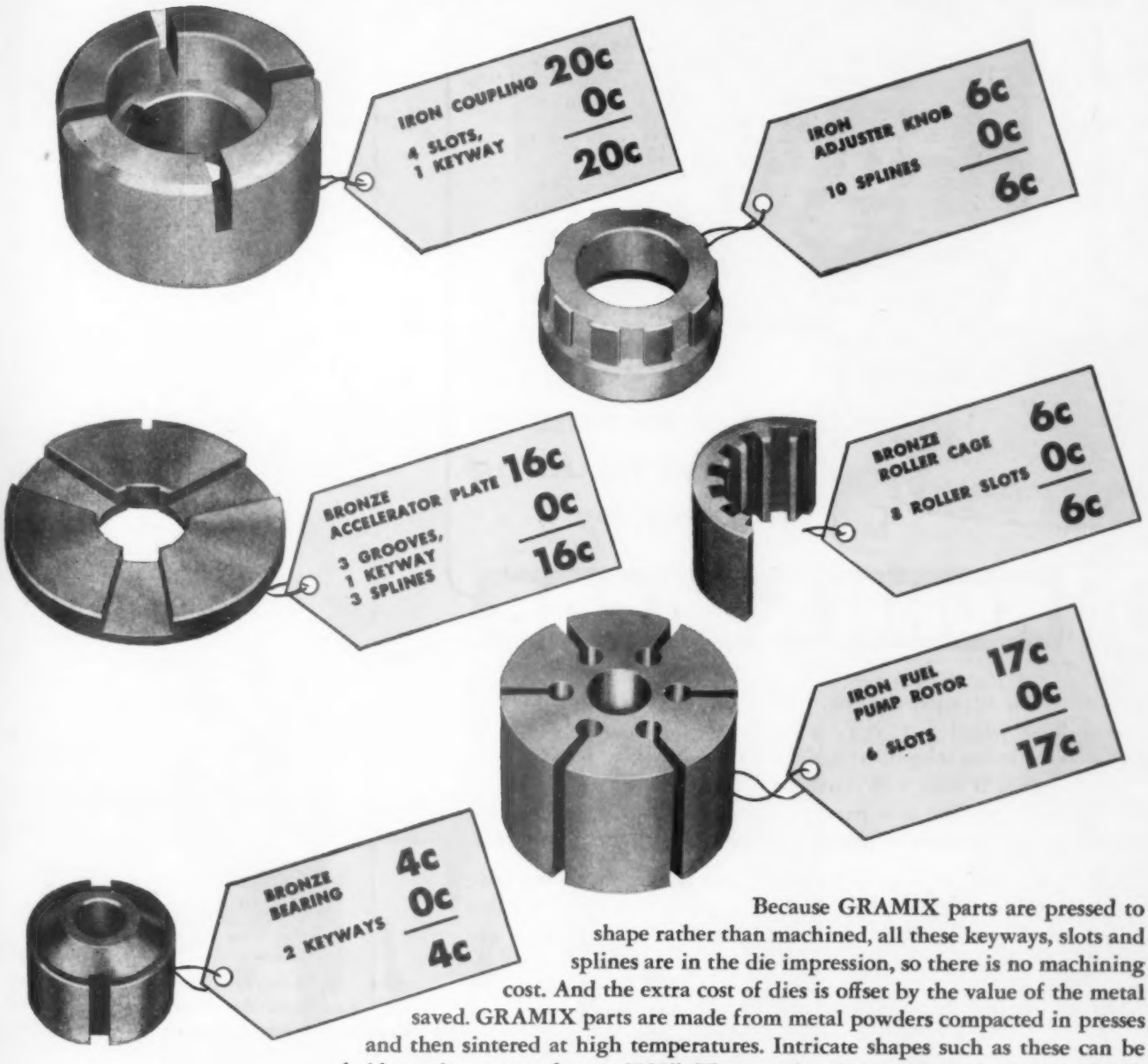
Circle No. 153 on Inquiry Card—Page 17

Automatic Device Eliminates Hole Piercing Operation

Worcester Pressed Steel Company of Worcester, Mass. produces for one of its customers substantial quantities of condenser cans. Each can must have a 1/32" diameter hole

(*Please turn to page* 200)

keyways splines and slots in these GRAMIX® parts are practically FREE!



Because GRAMIX parts are pressed to shape rather than machined, all these keyways, slots and splines are in the die impression, so there is no machining cost. And the extra cost of dies is offset by the value of the metal saved. GRAMIX parts are made from metal powders compacted in presses and then sintered at high temperatures. Intricate shapes such as these can be held to tolerances as fine as .0005". They can be oil-impregnated to provide self-lubrication. GRAMIX parts cost less than machined parts yet often outlast them. Write today for full details.

OUR 101ST YEAR

111

THE UNITED STATES GRAPHITE COMPANY

DIVISION OF THE WICKES CORPORATION • SAGINAW, MICHIGAN

For More Information Circle No. 633 on Inquiry Card—Page 17

Plastic Molding AND RADIO at its Finest



Granco "Music Hall" FM RECEIVER —in a beautiful plastic housing molded by . . .

KUHN & JACOB

This attractive housing, molded for Granco Products, Inc. of Long Island City, N.Y. is helping this company increase its sales in the competitive radio market. Ultra compact and handsome, it is made with simulated finish of ebony, grained walnut or ivory. The new *paragrid* panel, horizontally slotted, is a striking example of plastic molding at its finest.

If yours is a quality product that must meet competitive conditions, it will pay you to get in touch with K & J for that touch of style in plastic molding that only long experience can provide.

Write for Booklet on your letterhead

KUHN & JACOB MOLDING & TOOL CO

1221 SOUTHARD STREET, TRENTON 8, N. J.

CONTACT THE K & J REPRESENTATIVE NEAREST YOU

S. C. Ullman, 55 W. 42nd St., New York, N.Y. Telephone—Penn 6-0346

Wm. T. Wyler, Box 126, Stratford, Conn. Telephone—Bridgeport 7-4293

Wm. A. Chalverus, Carson Road, Princeton, N.J. Telephone 1-3170J2

For More Information Circle No. 634 on Inquiry Card—Page 17

(*Continued from page* 198)

pierced on the side. This hole is used to exhaust air after assembly of the electrical components. Originally the cans were pierced in a separate press operation. To get away from this relatively expensive operation, Worcester designed and built an automatic hole piercing



device. Cans are trimmed on a rotary trimmer. The operator then places the trimmed piece on the arbor of the hole piercing machine. The hole is automatically pierced and the piece is ejected by air into a tote box. The unit is readily adaptable to all eleven sizes of condenser cans which the company produces. In addition to eliminating the need for an operator to handle the separate piercing operation, a press is released for other types of works.

Circle No. 154 on Inquiry Card—Page 17

Valve Positions Hydraulic Cylinders



A 4-way rotary-actuating valve has been developed for positioning hydraulic cylinders in such equipment as mining machinery, bulldozers, road machinery, hydraulic lifts, power tools, etc. The single, self-contained mechanism actuates one to three cylinders, and is designed for 300-1500 psi pressures, with a capacity of 400 gpm at 1500 psi. The valve design incorporates exclusive full floating position,

(*Please turn to page* 202)

For More Information Circle No. 635 on Inquiry Card—Page 17→

Motions cost money



Save with

SEMS

Pre-assembled screw and lock washer

No more putting lock washers on screws by hand! Deliver SEMS to the assembly line and save motions. SEMS are *pre-assembled* screws and lock washers—two units handle as one, driving is easier, faster and the pre-assembled lock washers can't drop off! Try SEMS and see the difference.

36 sources

READY TO SERVE YOU NOW!

A. A. FASTENER CORP.
Rockford, Illinois

AMERICAN SCREW COMPANY
Willimantic, Connecticut

THE BLAKE & JOHNSON CO.
Waterville 14, Connecticut

BUTCHER & HART MFG. CO.
Altoona, Penn.

CANADA ILLINOIS TOOLS LTD.
Toronto, Ont., Canada

CENTRAL SCREW COMPANY
Chicago 9, Illinois
Keene, New Hampshire

CLEVELAND CAP SCREW CO.
Cleveland 4, Ohio

CONNECTICUT SCREW & RIVET CO., INC.
Waterbury 20, Connecticut

CONTINENTAL SCREW CO.
New Bedford, Mass.

EATON MANUFACTURING CO.
Reliance Division, Massillon, Ohio
London, Ontario

ELCO TOOL & SCREW CORPORATION
Rockford, Illinois

FEDERAL SCREW WORKS
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Chicago 27, Illinois

H. M. HARPER CO.
Morton Grove, Illinois

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NATIONAL LOCK COMPANY
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THE NATIONAL SCREW & MFG. CO.
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PHEOLL MANUFACTURING CO.
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REPUBLIC STEEL CORP.
Bolt & Nut Division, Cleveland 13, Ohio

RING SCREW WORKS
Van Dyke, Michigan

P. L. ROBERTSON MFG. CO., LTD.
Milton, Ont., Canada

ROCKFORD SCREW PRODUCTS CO.
Rockford, Illinois

RUSSELL, BURDSALL & WARD
Bolt & Nut Co., Port Chester, N. Y.
Los Angeles 33, California

SCOVILL MANUFACTURING CO.
Waterville Division, Waterville 48, Conn.

SHAKEPROOF DIVISION
Illinois Tool Works, Elgin, Illinois

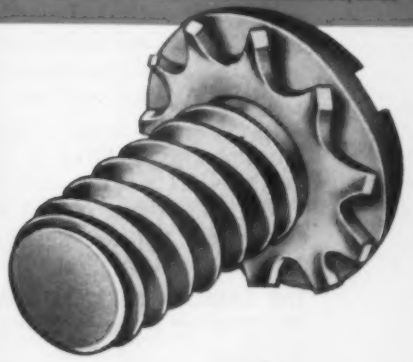
SOUTHINGTON HARDWARE MFG. CO.
Southington, Conn.

STEEL CO. OF CANADA, LTD.
Hamilton, Ont., Canada

THOMPSON-BREMER & CO.
Chicago 22, Illinois

TRIPLEX SCREW CO.
Cleveland 9, Ohio

WALES-BEECH CORP.
Rockford, Illinois



SHAKEPROOF® LOCK WASHERS ARE SPECIALLY DESIGNED FOR SEMS

When you order SEMS, get the highest locking efficiency by specifying SHAKEPROOF® Lock Washers, the only lock washers with tapered-twisted teeth and specially designed for SEMS.

SEMS is a development of Illinois Tool Works, Chicago

A PUMP PACKING THAT'S EXPENSIVE, BUT CHEAP!



Lasts at least 3 times longer than ordinary pump packings

Frankly, the service reports on LATTICE BRAID asbestos packing with Teflon surprised us! Originally designed and test-proven for use against severe acids, caustics, and other chemicals, this particular packing has out-performed other packings (*even our own*) on more common applications against water, steam, solvents, and oils.

And here's why: (1) The LATTICE BRAID construction gives greater strength; (2) The Teflon core and heavy Teflon impregnation resist everything except molten alkali metals and some freons; (3) It does not adhere to the shaft or rod; (4) It runs smoother and freer than packings without Teflon.

Check these typical service reports:

- Against blending waxes and steam (for cleaning), it outlasted another Garlock style 10 to 1
- Against caustic at 325°F., 50 p.s.i., it outlasted competitive packing 38 to 1
- Against cold water, it out-performed other packings 3 to 1

LATTICE BRAID with Teflon is available in either Canadian white asbestos (style 5861) or blue African asbestos (style 5880). Each is furnished in packing sizes 5/16" to 1½" graduated by sixteenths.

Try an order of 10 feet or more today. Chances are you can *reduce* down-time, maintenance and replacement costs to *one-third* of their present amount.

THE GARLOCK PACKING COMPANY, PALMYRA, NEW YORK

Sales Offices and Warehouses: Baltimore • Birmingham • Boston • Buffalo Chicago • Cincinnati • Cleveland • Denver • Detroit • Houston Los Angeles • New Orleans • New York City • Palmyra (N.Y.) Philadelphia • Pittsburgh • Portland (Oregon) • Salt Lake City • San Francisco • St. Louis • Seattle • Spokane • Tulsa.
In Canada: The Garlock Packing Company of Canada Ltd., Toronto, Ont.

*Registered Trademark †The Du Pont Company's Trademark

GARLOCK LATTICE BRAID with TEFLON

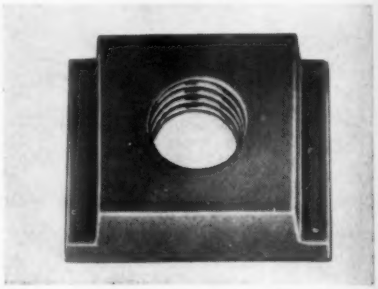
For More Information Circle No. 636 on Inquiry Card—Page 17

(*Continued from page* 200)

built-in bypass to minimize piston creep, and ball-bearing minimum-friction construction which assures easy operation and long life. It is a product of A. W. Cash Co., P. O. Box 551, Decatur, Ill.

Circle No. 155 on Inquiry Card—Page 17

Clinch Nut Made to Close Tolerances



Automation of production is said by Jacobson Nut Mfg. Corp., Kenilworth, N. J., to have made available a low cost clinch nut, costing less than similar types offered in the industry. Available in all machine screw sizes #6 to ⅜", it is made to very close tolerances to satisfy the requirements of industries that require precise clinch nut applications.

Circle No. 156 on Inquiry Card—Page 17

ANTI-CORROSIVE METAL PRODUCTS

NEW LOWER PRICES
On Larger Quantities Of
STAINLESS STEEL FASTENINGS

It will pay you to check ANTI-CORROSIVE *first* for real savings on stainless steel fastenings of all kinds. 9,000 items and sizes *in stock*, fast service on specials. Write or wire for full information TODAY!

ANTI-CORROSIVE
METAL PRODUCTS CO., Inc.
Castleton-on-Hudson, N. Y.

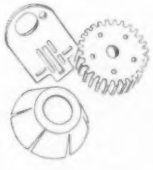
For More Information Circle No. 663 on Inquiry Card—Page 17



"Get prices down! Keep quality up! *BUT HOW?*"







Purchasing Agents do it through creative, analytical buying—coupled with the help they have a right to expect from progressive suppliers.

If your company works with *basic engineering materials*, call on National. Here's a company offering an exceptionally broad line of materials, backed up by research facilities and production know-how you need to support your decisions.

NVF materials—Vulcanized Fibre, Phenolite Laminated Plastic, Metal-Clad Phenolite and Fibre, Peerless Insulation—are surprisingly adaptable. Each is manufactured in many forms, grades, and combinations, with various degrees of hardness, resilience, flexibility, insulating ability, dielectric strength, moisture resistance, and ease of fabrication. What they can do—to reduce costs and preserve product quality—has raised many a manufacturer's eyebrows *and profits!*

NVF maintains complete facilities for machining and forming ready-to-use parts. This saves you operating steps and gives you 100% usable parts. Working with a single integrated supplier often turns red figures into black ones.

If you buy basic materials—let an NVF engineer show you how he can help you maintain high quality at lower unit costs. And if you want to slash handling costs, look over National's line of materials handling receptacles—made of lightweight, sturdy, long lasting Vulcanized Fibre.

For basic materials, write for General Catalog. For Receptacles, write for Catalog HVF. Address Dept. E-6.



NATIONAL
VULCANIZED FIBRE CO.
WILMINGTON 99, DELAWARE

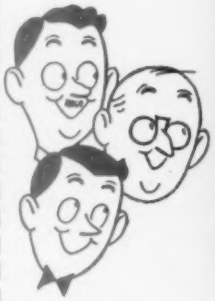
In Canada: **National Fibre Company of Canada, Ltd.** • Toronto 3, Ont.

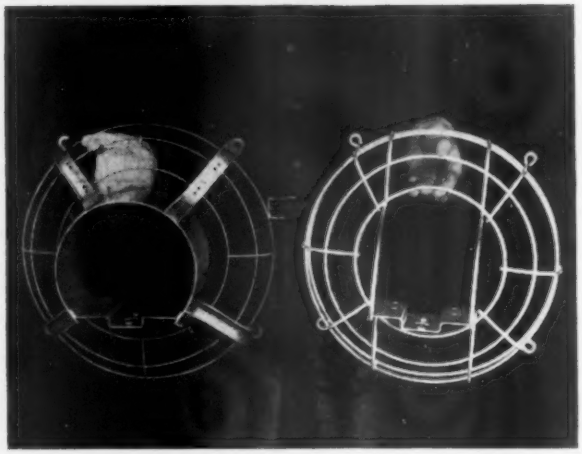
Also Manufacturers of Peerless Insulation, Materials Handling Receptacles, Vul-Cot Wastebaskets and Textile Bobbins.

For More Information Circle No. 637 on Inquiry Card—Page 17

Most costs can be reduced!

Come to Titchener!





$1.00 PER UNIT SAVED: This motor mount was originally comprised of two separate parts—sheet steel and wire guard. To simplify assembly and reduce unit cost, the manufacturer came to Titchener. Result: the new Titchener-manufactured motor mount, right, is a single welded-wire assembly. Strip steel is eliminated, and only one assembly step is necessary.

Take advantage of Titchener ideas

Costly products and parts for all types of industry are constantly being replaced by Titchener simplified components . . . with equal or improved reliability of performance . . . *at significant cost reductions.*

We welcome the opportunity to discuss your problems with you personally.

Visit us . . . inspect our cost-cutting facilities for volume production at first hand. Our business is to help you make *your* product more competitive in price and performance. If you find it impossible to come to Titchener personally, write us about your problem. Send prints or samples. You'll receive a complete cost analysis plus cost-cutting suggestions. Production quotations included. A full size sample can be made at your request. Your information remains confidential.

A few of the many firms which have recently benefitted from a trip to Titchener:

- Surface Combustion Corporation
- I.B.M. Corporation
- Daystrom Furniture Company
- General Electric Company

WIRE GOODS Headquarters



FREE . . . new booklet; "How Wire Construction Reduces Costs"

A brand new study, "Before" and "After" illustrations of 36 products, with specific details on how Titchener suggestions enable manufacturers to cut costs and improve their product. Just mail the coupon.

E. H. Titchener & Co.

92 Clinton St., Binghamton, N. Y.

E. H. Titchener & Co.
92 Clinton St., Binghamton, N. Y.
Please forward my copy of the free "HOW" booklet showing how wire redesign by Titchener cuts costs.

Name.....

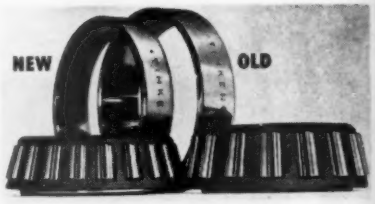
Company.....

Address.....

City.....

For More Information Circle No. 638 on Inquiry Card—Page 17

New Bearings Save Space and Weight, Cost Less

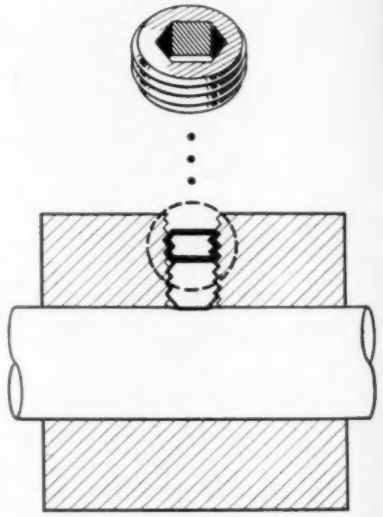


The Timken Roller Bearing Company, Canton, Ohio, has developed three new tapered roller bearings in bore sizes of ¾", 1¼" and 1⅜" which take up less space and cost less than previous bearings of same bore size.

Substantially reduced in width and outside diameter and weighing 25% less, the new bearings permit savings in related parts, too. Seals are smaller and cheaper. Less material and machining are required for the bearing mounting. Equipment manufacturers can now receive the advantages of tapered roller bearings in many new applications at minimum cost.

Circle No. 157 on Inquiry Card—Page 17

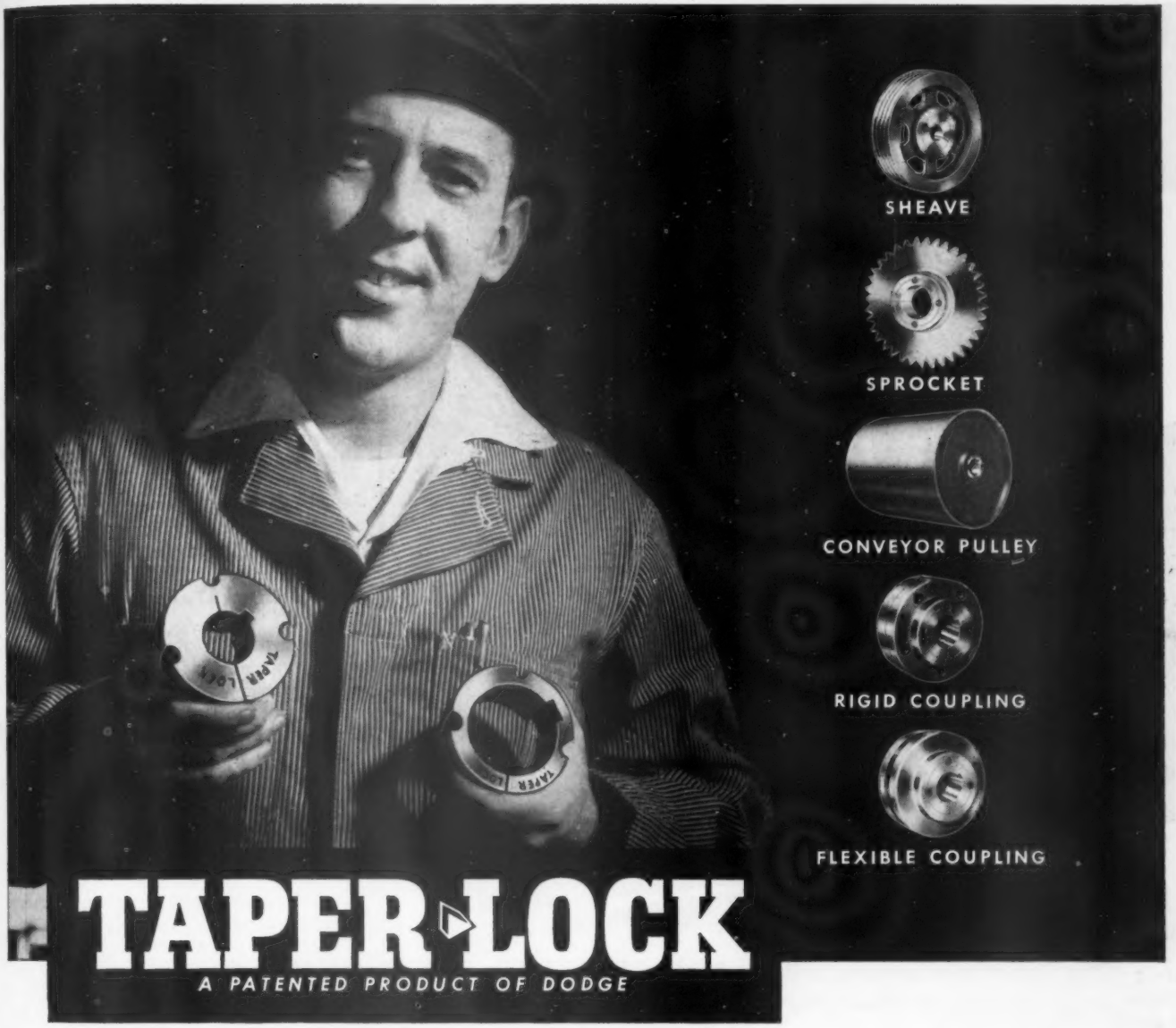
Hollow Lock Screws Prevent Costly Shut-Downs



Hollow lock screws for holding socket set screws are being marketed by the Mac-it Div., Strong, Carlisle & Hammond Co., Cleveland 13, Ohio. They meet today's higher speeds, heavier loads, longer continuous operation and greater stresses which have created a problem in set screw fastening. The "all the way through" design of the hex socket permits adjustment or resetting of the set screw

(*Please turn to page* 210)

For More Information Circle No. 639 on Inquiry Card—Page 17→



TAPER-LOCK

A PATENTED PRODUCT OF DODGE

"Brother...you sure can save with these interchangeable bushings!"

With a few Taper-Lock bushings you can make quicker changes and cut down-time on production machines—because Taper-Lock bushings are *interchangeable*. Shift from a Dodge sprocket to a Dodge sheave, and use the same bushing! Taper-Lock bushings are available in a range of sizes which makes changing from one size shaft to another equally easy and quick.

Mount 'em all with Taper-Lock bushings—your sheaves, sprockets, couplings, conveyor pulleys. They slip on the shaft quickly—hold with the firmness of a shrunk-on fit—come off easily without shock to bearings or machinery. Standardize, economize with Taper-Lock.

DODGE MANUFACTURING CORPORATION, 1300 Union St., Mishawaka, Ind.

THERE'S ONLY ONE TAPER-LOCK, THE BUSHING THAT MOUNTS FLUSH!



CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new, cost-saving methods. Look for his name under "Power Transmission Machinery" in your classified telephone directory, or write us.



DODGE

of Mishawaka, Ind.

For More Information Circle No. 640 on Inquiry Card—Page 17

Free! NEW 8 PAGE BROCHURE

on Screw Machine Services



Your screw machine parts needs can be simplified by Biddle. This new 8-page brochure takes you through the Biddle plant in Sheridan, Indiana, and shows a small part of the plant devoted exclusively to screw machine parts production. From the giant Conomatic's to the small Acme-Gridleys . . . from warehouse to shipping room, this brochure shows how Biddle is geared for service to your needs.

You'll find it interesting because Biddle handles work for many of the outstanding names in American industry. This plant, whose facilities meet the requirements of big industry, is available to assist you. Write today for this brochure. If you have immediate needs, your drawings via mail or a call to us will receive immediate attention.

Member of the NATIONAL SCREW MACHINE PRODUCTS ASSOCIATION

BIDDLE SCREW PRODUCTS COMPANY
SHERIDAN, INDIANA
Telephone Sheridan 351
Indianapolis Direct Line MElrose 5-1243

For More Information Circle No. 641 on Inquiry Card—Page 17

(*Continued from page 240*)

without removal of the lock screw. When set firmly in place, the lock screw presses against the surface of the set screw, providing extra locking action where it is needed. They are produced with coarse or fine threads in 12 standard diameters ranging from #6 to 1".

Circle No. 158 on Inquiry Card—Page 17

Die Casting Institute Has Product Standards Program

The American Die Casting Institute, has announced a series of "Product Standards For Die Castings", this new service helps designers, engineers and purchasing agents avoid "overspecification"—the costly process of demanding unnecessarily critical production conditions.

The product standards program will comprise three series of recommendations when completed—engineering, metallurgical and commercial.

David Laine, Secretary of ADCI, commenting on this new program, said: "These standards are being developed to serve as a guide to the most economical use of die castings. Experience of our member die casters has shown that many customers tend to overspecify their die castings—that is, they demand more critical conditions than the application requires."

Mr. Laine explained that many design engineers, aware of the capabilities of the die casting process, have no guide to effective utilization of its potential. Created to assist in specifying realistically, these standards present design values consistent with high speed uninterrupted production, reasonable die and tool life and maintenance cost, normal inspection, packing and shipping costs. By conforming to these standards, designers can specify die castings on the most economical basis. Critical requirements should be specified only where necessary and, Mr. Laine further explained, "These requirements may be simplified if the design engineer consults the die caster early in the design stage."

All standards give values for normal production practice at the most economic level in each of the four die casting metals—zinc, aluminum, magnesium, and copper. Recommendations for both "critical" and "non-critical" dimensions are presented.

Sure, that old pump still works,

but how much does it cost to keep?

That rugged old pump of yours may not be the bargain that it seems. Let's do some arithmetic. If the efficiency of the old pump is 75% vs. the 85% efficiency of the new pump, you are paying more to keep it than you would to replace it. That's because a new unit of equivalent output uses less power. Thus it soon saves its own cost — then begins to pay dividends.

Let's take a specific example—a small general service pump

Old pump efficiency 70%	**28.9 BHP**
New pump efficiency 79%	**25.6 BHP**
	3.3 BHP Saving

On the basis of 1¢ per KWH, the 3.3 BHP saving for a 6000-hour year (approximately 16 hours per day) amounts to $150. This saving, capitalized in 4 years at 4% adds up to $630. Yet the price of the new pump that saves $630 is only $438.

What would the pump replacement profit be in your particular case? Your De Laval representative can tell you exactly — in dollars and cents — as soon as he has the basic facts on your present installation. Call him in today or write to De Laval for Pump Fax Bulletin which includes a valuable "power-savings" chart.

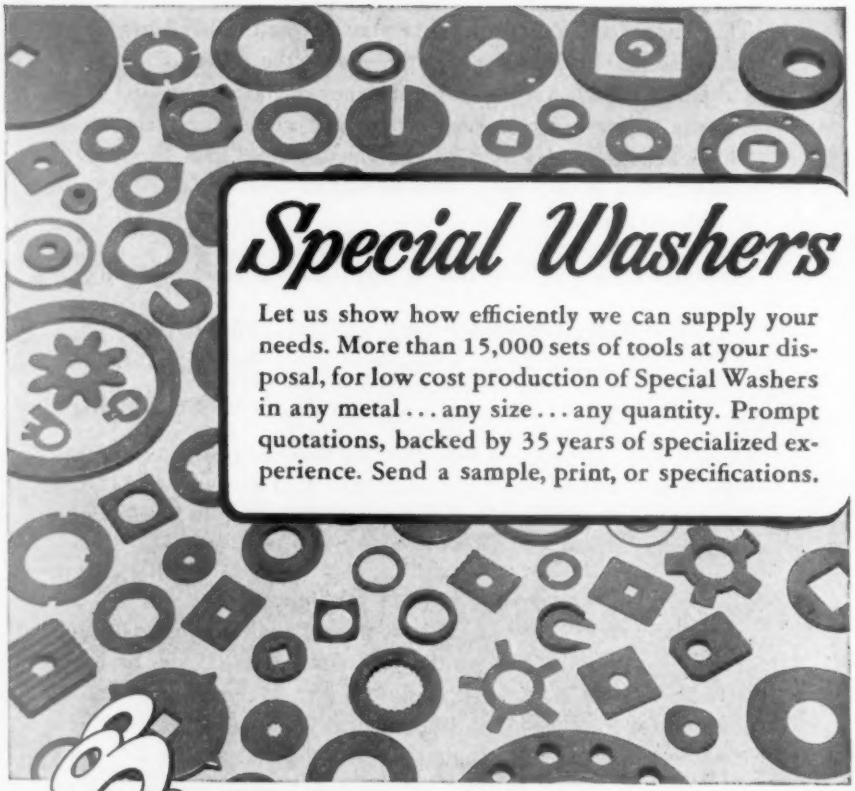


DE LAVAL *Pumps*

DE LAVAL STEAM TURBINE COMPANY

807 Nottingham Way, Trenton 2, New Jersey

DL-217A



For More Information Circle No. 642 on Inquiry Card—Page 17

YOU CAN GET 42 STOCK SIZES 3/16" to 3"



HALLOWELL®

SOLID STEEL COLLARS from your industrial distributor

All of these precision-machined solid steel collars are size-marked for quick identification, and fitted with the famous self-locking UNBRAKO Socket Set Screw for positive positioning on the shaft. Write for Bulletin 868. STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

HALLOWELL POWER TRANSMISSION DIVISION SPS JENKINTOWN PENNSYLVANIA

For More Information Circle No. 643 on Inquiry Card—Page 17

The Outlook for Die Castings in 1955

By David Laine, Secretary
American Die Casting Institute

Address presented at 37th Annual Meeting American Zinc Institute, Inc.

In past years we have, of necessity, talked of unstable markets and inadequate supplies of zinc. Today a more palatable choice is available. Zinc has been in ample supply as well as stable in price. As a result the high metal consuming automotive grille market has been recaptured for die casting and for zinc. The reappearance of die cast grilles and other elements on the front ends of 1955 passenger cars has been an important factor in reducing the stocks of zinc producers from last fall's untenable levels. To accomplish this, we as die casters found it necessary to meet and to beat ruthless competition from other metals and methods of fabricating—and at little, if any, profit.

Thus, while price levels for zinc may have been somewhat below what you believe satisfactory, we have faced a similar situation. But, unattractive as price levels may have been for both our industries, if the beauty and serviceability of zinc die castings secure our markets for the future we shall both have benefitted. Naturally, we do not and cannot expect you to produce and sell zinc at uneconomic levels. Nor do we intend to manufacture and sell die castings at such levels. But, only a long range economically sound solution will successfully protect us in retaining these markets. Proper research as to requirements for special high grade zinc must be undertaken in order that the pressures of temporary inventory glut or famine, of seasonal imbalance in supply and demand, of interim production peak or valley, may not again lead to disorganized marketing.

Acceptance of such a premise opens the way to more logical and basic approaches to the problem and to a secure and desirable future. In citing these pitfalls, gentlemen, we speak as experts. The die casting business qualifies us as such. When we need to produce die castings we can't get metal—when our production is off metal is always freely available. Incidentally, it may relieve you to know that our expertness in such matters is not restricted to zinc or to special high. Our knowledge, very recently, was

(*Please turn to page* 216)



Get this Motor Application Help...

it begins when you start

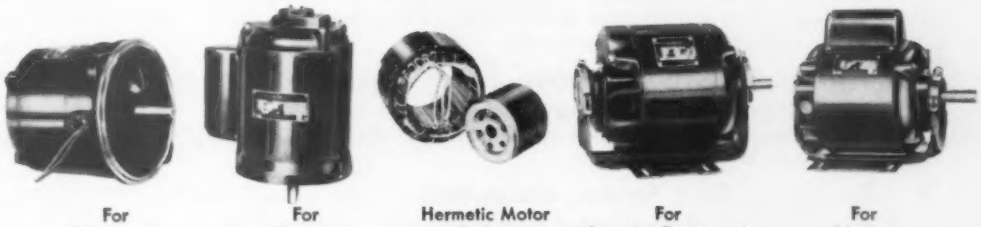
You can have an Emerson-Electric power-drive specialist right at your elbow the moment you start working on any design problem. He will stay with it to the "end of the line"—follow through every stage from development to final test and application runs.

Help like this is especially valuable because Emerson-Electric specialists know motors AND the needs of appliance and equipment manufacturers. They have gained their knowledge through 65 years of meeting motor-drive requirements—beginning in 1891, when the first motor was produced to operate a sewing machine. Since this early date, their accumulated experience has covered 38 different fields; a few are listed at the left.

Profit by Emerson-Electric's years of experience and the combined ability of its motor specialists. They know motors AND the appliance and equipment business.

EMERSON-ELECTRIC SUPPLIES MOTORS FOR APPLIANCES AND EQUIPMENT IN THESE CLASSIFICATIONS

Beauty Shop
Farm
Heating and Ventilating
Laundry
Medical
Musical
Office
Printing and Typesetting
Pump
Recording
Refrigeration
Scientific
Store



For Oil Burners | For Pumps | Hermetic Motor Parts | For Laundry Equipment | For Blowers



Write THE EMERSON ELECTRIC MFG. CO., ST. LOUIS 21, MO., for Bulletins listed below

- ☐ M 4012-A Capacitor-Start
- ☐ M 4012-B Split-Phase
- ☐ M 4012-C Integral
- ☐ M 4012-D Fan Duty
- ☐ M 4012-E Oil Burner
- ☐ M 4012-F Jet Pump
- ☐ M 4012-G Blower

Emerson-Electric of St. Louis • Since 1890

Branches

New York 17, N. Y., 420 Lexington Ave. • Chicago 23, Ill., 1623 S. Pulaski Road • Syracuse, N. Y., 209 Oakley Drive • Detroit 7, Mich., 1375 E. Jefferson Ave. • Los Angeles 42, Cal., 5415 York Blvd. • Davenport, Iowa, 617 Brady St. • Cincinnati, Ohio, 2917 Ratterman Ave.

For More Information Circle No. 647 on Inquiry Card—Page 17



The **responsibility** of being a leader

The United States Gasket Company is the recognized leader in the fabrication and application of the "wonder plastics", duPont TEFLON and Kellogg's KEL-F—leadership earned through many years of pioneering.

The responsibility of this leadership is acutely recognized by the progressive management of this company and is apparent in its three essential activities.

1. **Continued engineering research**
   Three highly specialized engineering laboratories are maintained—chemical, electronic and physical—engineering which continues to produce most of the advanced ideas and practices in the application of these plastics to commercial, A.E.C., and military requirements.
2. **Quality controlled production**
   The most modern facilities for rapid, low cost quality production—many machines and equipment designed by our own engineering department.
3. **Engineering Sales Service, everywhere**
   Representatives of the United States Gasket Company are located in all principal cities here and abroad. These men are factory-trained and are ready to translate your problems into satisfactory solutions with U.S.G. products—either at the moment, or drawing upon the wealth of specialized knowledge of the home office.

Write for twenty page Brochure "Inside U.S.G."

UNITED STATES GASKET COMPANY PRODUCTS INCLUDE—Chemically impervious gaskets, packing and expansion joints • High voltage, high frequency, high temperature insulating materials • TEFLON alloys • No-lubricant, non-contaminating bearings and bushings • Chemical-proof pump impellers and parts • Electronic components and electro-mechanical assemblies • Cementable TEFLON • Solderable TEFLON • Perforated TEFLON and KEL-F discs and Raschig rings for chemical towers • TEFLON-faced guide rails, work surfaces, hoppers • TEFLON pipe liners • Chemical resistant mechanical seals, etc.

UNITED STATES GASKET COMPANY
CAMDEN 1 • NEW JERSEY
FABRICATORS OF duPont TEFLON, Kellogg KEL-F AND OTHER PLASTICS
Representatives in Principal Cities Throughout the World

For More Information Circle No. 648 on Inquiry Card—Page 17

(*Continued from page* 212)

extended to the field of aluminum casting ingot. Someone must have told them about die casters!

In this connection, I would like to review two matters which a year ago seemed responsible for unsatisfactory zinc die casting production levels. The first of these was the now dead but not yet buried fable that increased aluminum die casting resulted from conversion of applications from zinc die casting. I pointed out that statistically no evidence existed to substantiate this thesis. This year — now — the advocates of the indiscriminate switch are strangely but understandably silent. Application requirements as measured in physical and mechanical properties, now as then, determine the metal to be die cast. Economics, including the effects of erratic metal markets, only determine when.

The second point in last year's discussion was that confidence in zinc as a stable, available, raw material had been shaken, and that its re-establishment would see increased use of zinc die castings. The Joint Market Development Committee of AZI and ADCI concluded that vigorous merchandizing of die casting as the most economic of non-ferrrous metal fabricating processes was the proper approach. The program was based upon the production of the AZI film—"Die Casting——How Else Would You Make It?" Planned high utilization of the film in showings to industrial technical and design personnel was the basic approach. The film itself is excellent and well merits its selection as one of the outstanding industrial productions of the year.

As you know, AZI has booked over 400 screenings; our members, hundreds more. More important, our regional groups cooperatively have sponsored major exhibits of die castings with the film as the key attraction. The first cooperative die casting industrial exhibit in history was held in Newark, New Jersey, last February and drew a selected invited audience of over 450 representatives of 152 customer or potential customer firms. Last month our Pacific Coast group sponsored a large die casting exhibit at the Western Metal Congress and screened the film for thousands of interested visitors. I won't attempt to catalog the many other efforts or those planned. But much is being done and we believe successfully.

(*Please turn to page* 220)

For More Information Circle No. 649 on Inquiry Card—Page 17→



Compare actual O-ring samples

Prove by comparison tests how Parker O-rings seal better and last longer

For trouble-free leakproof sealing, you can depend on Parker O-rings. They are precision molded of superior compounds that have been developed as the result of thousands of tests.

Elongation, tensile strength, compression set ratings, resistance to oils, fuels, chemicals, and high and low temperatures, are determined with care. Then, laboratory and service tests make sure that all rated characteristics are held.

From Parker you can get exactly the *right* O-ring for your *specific* application. We invite you to compare Parker O-rings with any other make. Our engineering service will also help you with designing problems.

Send for complete engineering data today. Mail the coupon for your *free* data book or ask your Parker O-ring distributor for a copy.

RUBBER PRODUCTS DIVISION
The Parker Appliance Company
17325 Euclid Ave., Cleveland 12, Ohio
1538 So. Eastern Ave., Los Angeles, Cal.

Parker

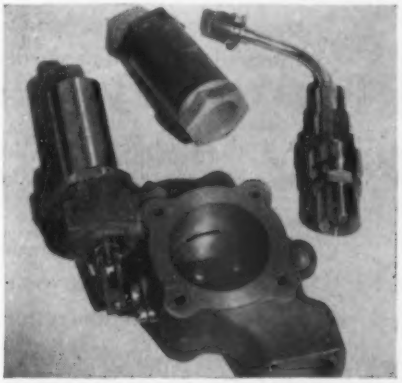
Hydraulic and fluid system components



Laboratory and service tests check compound resistance to oils, fuels and chemicals at high and low temperatures ... assuring the long life of Parker O-rings.



Precision molding by exclusive, automatically controlled methods assures close-tolerance fits. Parker has molds for every *standard* O-ring size. Send for data.



What other Parker products for aircraft applications interest you? We build jet-engine accessories (shown above) for engine *fuel, hot-air* and *hydraulic* systems.

RUBBER PRODUCTS DIV.
Section 511-D
The Parker Appliance Co.
17325 Euclid Avenue
Cleveland 12, Ohio



Please send me the following information:

- ☐ O-ring catalog No. 5100
- ☐ Also, please send me your new 24-page book about Parker engine accessories Bulletin No. 1330B1.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

For More Information Circle No. 651 on Inquiry Card—Page 17

HOW CHACE THERMOSTATIC BIMETAL ACTUATES THE BAKE-WELL OVEN THERMOMETER



Product of the Cooper Thermometer Co., Pequabuck, Connecticut

In the twenty years the Bake-Well Portable Oven Thermometer has been manufactured, its efficient performance and low cost have established its popularity in millions of homes in this country and abroad. Although most cooking appliances and stoves are now made with integral automatic controls, the housewife still regards an on-the-spot heat indicator as more accurate.

A coil of Chace Thermostatic Bimetal furnishes the thermally responsive element which actuates this simple device. One end of the coil is anchored to the frame of the thermometer. The other end of the coil is fastened to a pointer. Temperatures in excess of 100°F. cause the bimetal coil to expand, rotating the pointer to register the correct temperature on dial. The Chace Thermostatic Bimetal coil is accurately calibrated at the factory to insure positive temperature indication over many years of dependable service.

Chace Thermostatic Bimetal is available in 29 different types, in strip, coils or in completely fabricated assemblies made to customer specifications. Send now for our new, free 36-page booklet, "Successful Applications of Chace Thermostatic Bimetal," containing valuable engineering information for designers of thermally responsive devices.

IT BENDS WITH THE HEAT

W. M. CHACE CO.
Thermostatic Bimetal
1635 BEARD AVE., DETROIT 9, MICH.

For More Information Circle No. 652 on Inquiry Card—Page 17

(*Continued from page* 216)

To futher advance the drive for wider markets, the American Die Casting Institute has undertaken an extensive industrial publicity program to carry on and supplement the task which you in AZI initiated.

Today an evaluation of the 1954 program will make clear the outlook for zinc die castings in 1955. Box office returns and column inches of print mean little as such. But the cooperation of the zinc industry and the die casting industry, and the very fact that such mutual undertakings are possible, means a great deal.

A realistic appraisal of results will show the following:

1. That the approach to wider markets for zinc die castings through increased acceptance of all die castings is justified.
2. That the Joint Market Development Committee is of proved value to both our industries.
3. That confidence in zinc as a reliable raw material for industry has been established.
4. That 1955 — barring unpredictable circumstances—will probably be the year of highest consumption of zinc for die castings in history. A level of 285,000 to 300,000 tons may be achieved—and held in 1956.
5. That even higher levels (now in planning for 1957) are possible and continued cooperation can make sure we attain them—and profitably.

First True Centrifugal Castings of Titanium Produced

Production of the first successful true centrifugal casting of titanium has been achieved as result of metallurgical research at the Armour Research Foundation of Illinois Institute of Technology, Chicago.

The studies were sponsored by Wisconsin Centrifugal Foundry, Inc., Waukesha, Wis. A number of castings, weighing from 3.3 pounds to 9 pounds, have been produced.

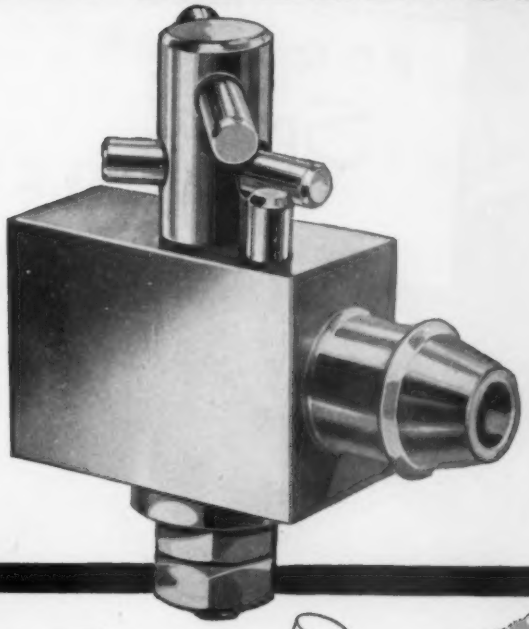
One of the principal advantages expected to result from the development of centrifugal castings of titanium lies in the metal's resistance to certain types of corrosion, Giddens pointed out.

"This development," he stated, "opens a new field in the use of titanium castings. These castings can be used as sealing rings, bushings, and fittings in areas where salt water corrosion is a major problem."

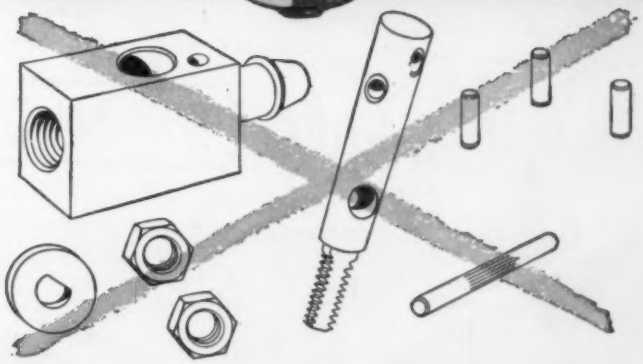
(*Please turn to page* 222)

For Maximum Cost Reduction

Buy the Assembly...



...NOT the Parts



WESTERN supplies the whole assembly ...saves you time, money and headaches

Value Analysis proves that you are generally time and money ahead by purchasing a complete assembly rather than a myriad of component parts. *You need just one purchase order, and you get the distinct advantage of centralized responsibility.*

The stainless steel valve assembly shown here is typical of mass-produced precision assemblies you can get from WESTERN. We offer experienced engineering counsel plus the finest production facilities for the manufacture of precision assemblies and screw machine parts — from wire size up to a husky 4⅝" round. We do the *complete* job, including all finishing operations — heat-treating, grinding and pentrating.

For fast, reliable delivery, precision quality and low cost, it pays you to put WESTERN on your production team.

Why not send us your blueprints for quotations . . . today?

Western Automatic
Machine Screw Company
378 Woodland Ave., Elyria, O.



Precision Screw Products, Parts and Assemblies Since 1873

For More Information Circle No. 654 on Inquiry Card—Page 17



STANLEY TOOLS • STANLEY HARDWARE
STANLEY ELECTRIC TOOLS • STANLEY STEEL STRAPPING • STANLEY STEEL
For More Information Circle No. 655 on Inquiry Card—Page 17

(*Continued from page* 220)

Such uses might be as anti-corrosion rings for carrier-based aircraft, and as jet engine parts, Giddens added. Centrifugal castings of titanium have the advantage of a high strength to weight ratio, he said.

One of the principal stumbling blocks in making parts using titanium has been difficulty encountered in melting and pouring the metal to produce sound castings, he stated.

He explained liquified titanium will attack nearly any other material, with the result that the casting will have a rough surface and contain impurities from absorbing gases from these materials.

Details of the process through which a solution to this problem was reached have not been released by the company.

Light-Weight Titanium Bolts Now Being Fabricated



Fabrication of light-weight titanium bolts that equal or exceed the performance of present-day, high-strength steel aircraft bolts was announced recently by Standard Pressed Steel Co., Jenkintown, Pa.

While weighing only 57% as much as its steel counterpart, the new fastener, called Hi-Ti by SPS, makes feasible for the first time the part-for-part substitution of titanium for steel bolts in critical tension applications on aircraft.

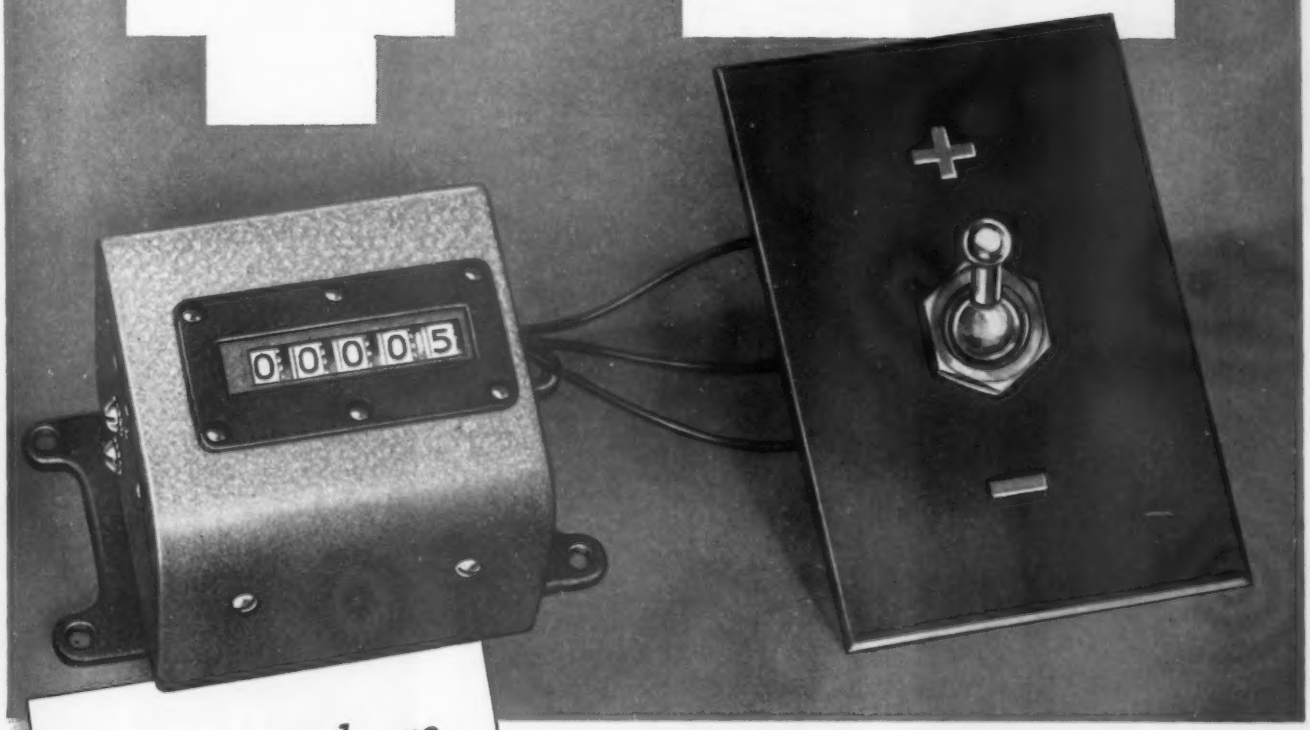
Weight saving without loss of strength can range as high as 1000 pounds in a single airplane.

Design implications of SPS' titanium bolt may be even more significant. For Hi-Ti bolts tested to date have shown that, pound for pound, they can take a maximum dynamic load more than twice that

(*Please turn to page* 224)

This Magnetic Counter

Adds and Subtracts



Added Evidence that —

Everyone Can Count on VEEDER-ROOT

Flip the switch up . . . the counter adds. Flip it down . . . it *subtracts*. And this 2-way countability makes this new counter a distinct asset to modern systems of automation, control engineering and stock control. Readily adaptable, easily installed and connected to existing circuits, the Veeder-Root "plus or minus" counter is a reliable double-check on the operation of machines, processes, systems. And it's just one of scores of standard and special Veeder-Root Counters for every field of reckoning from atomics to electronics to automation. What is *your* counting problem? Let's put a mathematical eye on it . . . write:

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Offices and Agents in Principal Cities

"The Name that Counts"

For More Information Circle No. 656 on Inquiry Card—Page 17

(*Continued from page 222*)

of comparable steel bolts without ever failing through fatigue.

The Hi-Ti is fabricated from a titanium alloy—containing four percent aluminum and four percent manganese. Since the alloy weighs only 57 percent as much as alloy steel, one pound of Hi-Ti bolts can do the work of one and three-quarter pounds of steel bolts. Each pound of Hi-Ti, therefore, saves three-quarters of a pound of weight.

In addition to the advantage of being a light-weight metal, titanium also has outstanding corrosion resistance properties. So, as the price drops with a wider market and increased production, applications will probably open for the Hi-Ti bolts outside of aviation, too, in the chemical and nuclear power industries for example.

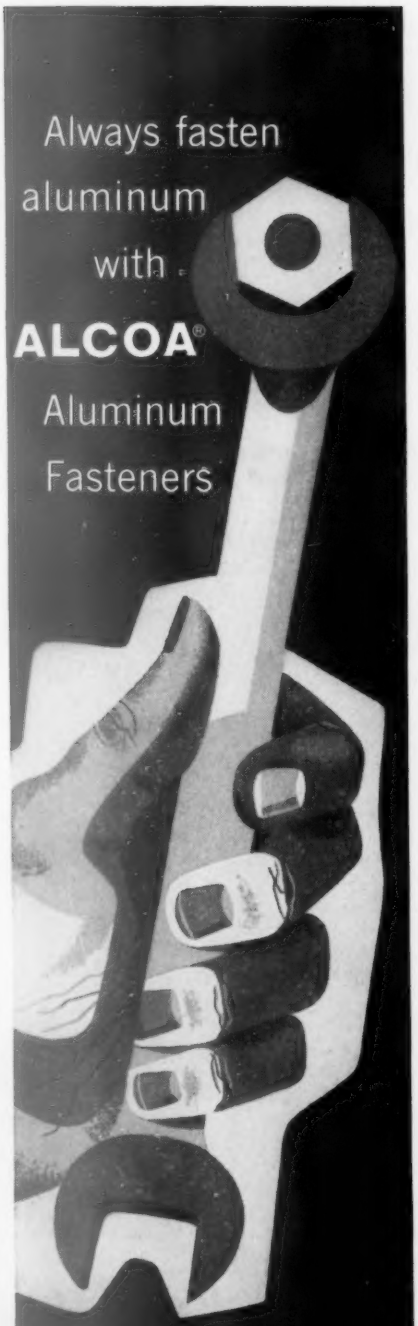
Die Casters See 1955 as Best Year in History

1955 is expected to be the best year in the history of the die casting industry, according to the American Die Casting Institute, national association of job shop die casters. This estimate is based on increased civilian aluminum die casting uses, plus the greatly expanded use of zinc die casting in automobile front ends.

The increased automotive die casting consumption and applications in major appliance industries spurted 1954 job shop sales to $268,000,000. Of the four metals which are die cast commercially, zinc was the leader by weight: Job shop output of zinc-base die castings was 292,000,000 pounds. The die casting industry consumes over 38 percent of the nation's slab zinc output, second only to galvanizing. Aluminum job shop die casting production totalled 168,000,000 pounds. 42 percent of the nation's aluminum casting ingot is fabricated by die casters.

Job shop magnesium die casting volume for 1954 reached 3,720,000 pounds. Magnesium die casting output is reflected in high aircraft use of die cast parts, where the light-weight metal used for various components translates into greater aircraft payload.

Job shops processed 3,785,000 pounds of copper-base or brass die castings. The higher melting point of these copper-base materials reflects in restricted applications. The Institute's present research into higher temperature-resistant die materials promises to drastically increase use of brass die castings.



available at your local ALCOA distributor – fill out coupon for complete application and specification data...

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2248-E Alcoa Building,
Pittsburgh 19, Pa.

Gentlemen:
Please send complete specification data and samples of your aluminum fasteners.

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For More Information Circle No. 658 on Inquiry Card—Page 17



PLYMOUTH Rubber Bands
OUTSTRETCH
OUTLAST
ALL OTHERS

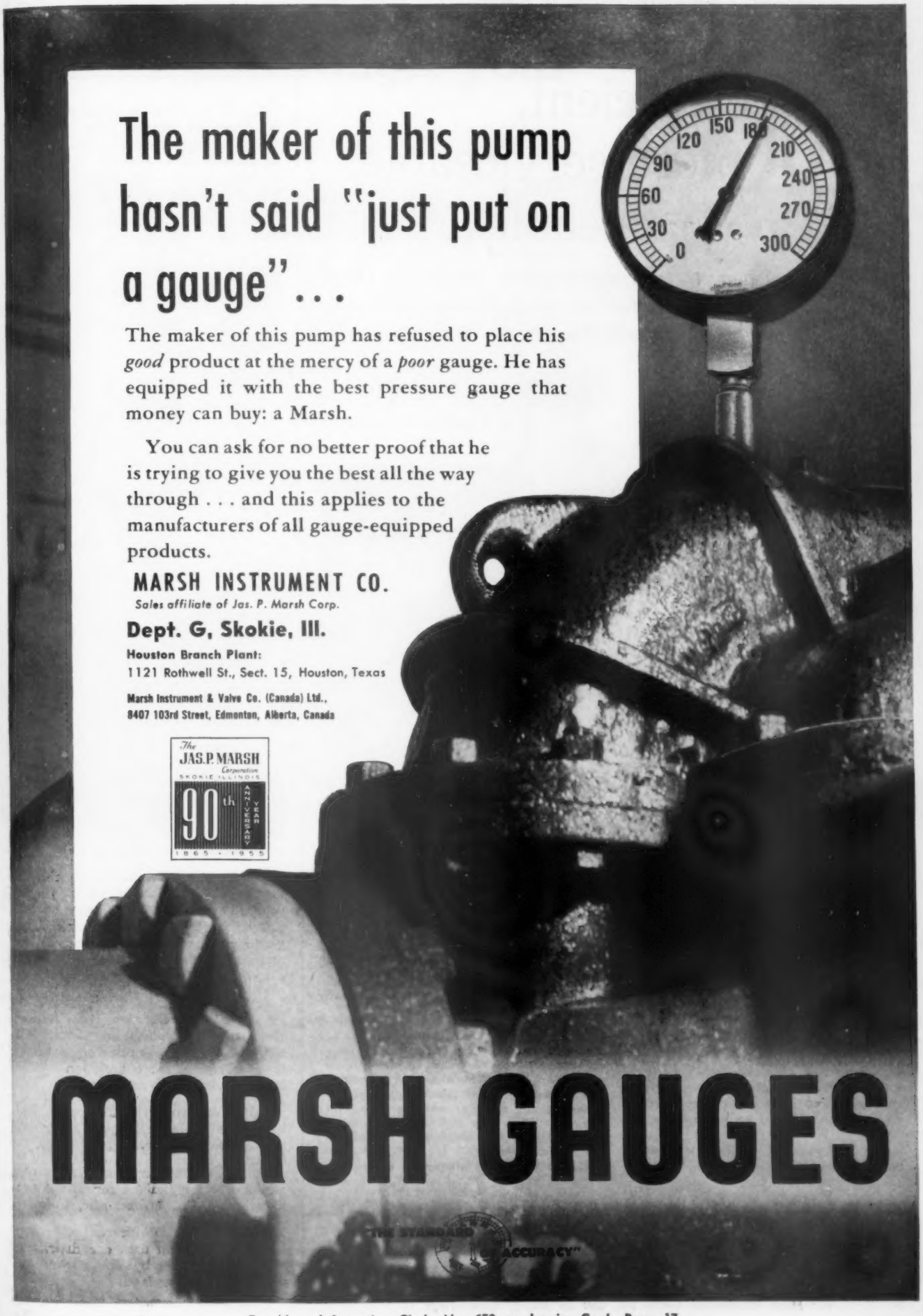
REPLACEMENT OR REFUND OF MONEY
Guaranteed by Good Housekeeping
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PROMPT DELIVERY

- Bands for Every Purpose
- Saves Time and Labor in Production
- We'll Make Them for Your Special Needs

NATIONALLY DISTRIBUTED . . . AVAILABLE AT YOUR REGULAR SUPPLIERS
All Plymouth Standard Bands Made to Federal Specifications
PLYMOUTH RUBBER COMPANY, Inc., Canton, Mass.

For More Information Circle No. 662 on Inquiry Card—Page 17



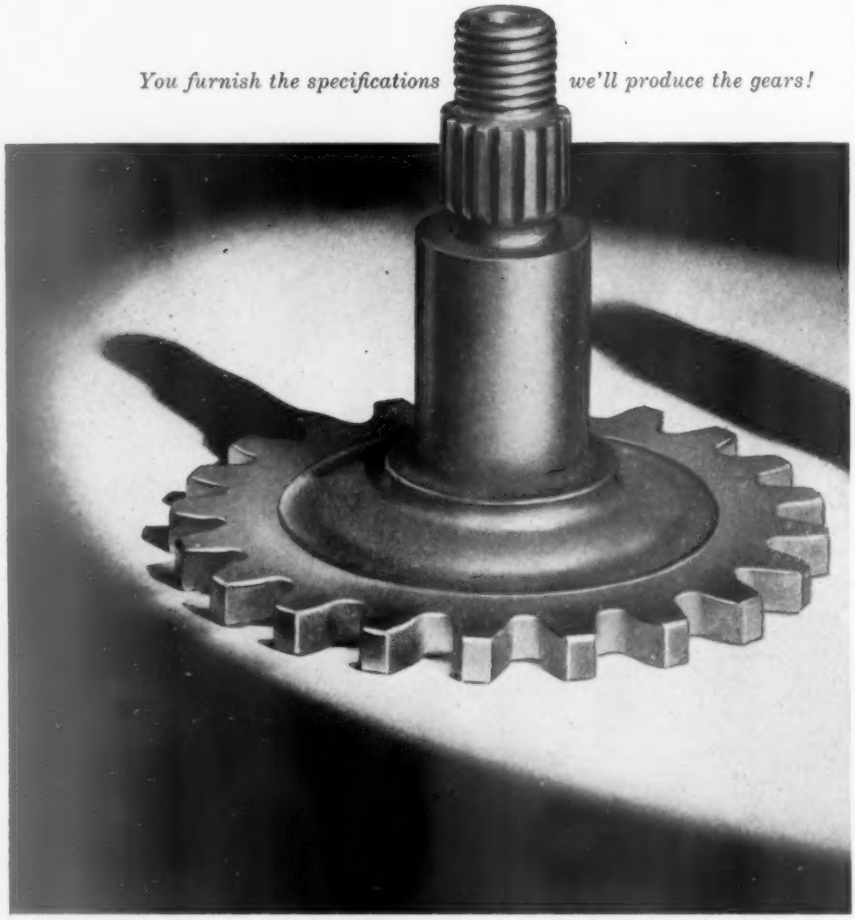
For More Information Circle No. 659 on Inquiry Card—Page 17

Perkins custom-made Gears *make any device—big or small, simple or complex—*

more efficient, more serviceable, more saleable . . .

because every human and mechanical advantage in Gear Making goes into their production—and all under management who have spent their lifetime in the Gear Business.

You furnish the specifications *we'll produce the gears!*



PERKINS MAKES:
to customers' specifications, in all materials, metallic and non-metallic: bevel gears, ratchets, sprockets, ground thread worms, spiral gears, helical gears, spur gears with shaved or ground teeth.

NOTE: The PERKINS PRECISION SPRING COILER is the latest development in the spring coiler field and eliminates entirely the use of arbors and long set-up time. It is a complete self-sufficient machine and enables you to make the spring you want when you want it — in seconds. The coiler produces any type of spring, in any diameter and any pitch with this range: Wire sizes .005 to .125. Diameter, from 3/32" to 12" and larger. Size of the compact coiler is only 7 1/2x16". A POWER MODEL is available. Information on request.

PERKINS MACHINE & GEAR CO.

107 Circuit Ave., WEST SPRINGFIELD, MASSACHUSETTS

For More Information Circle No. 660 on Inquiry Card—Page 17

DEVELOPMENTS IN THE COMPONENT PARTS INDUSTRIES

The Brake Shoe & Castings Division of American Brake Shoe Co., New York, has appointed Charles R. Joyce as eastern sales manager, and Daniel C. Poor as district sales manager. Both men joined the company in 1948.

The Warner Electric Brake & Clutch Co., Beloit, Wis., has named John Dewey as Chicago branch sales manager. He will supervise activities in northern Illinois, Indiana, and eastern Iowa.

The appointment of William R. McQuiston as sales manager has been announced by the **Electronics Engineering Co. of California, Los Angeles.**



W. R. McQuiston

Zurn Services, Inc., east coast marketing organization for the plumbing, industrial and marine products of **J. A. Zurn Mfg. Co., Pittsburgh,** has appointed Frank P. Glazebrook as district manager at Newark, N. J.

The Ingersoll Kalamazoo (Mich.) Division of **Borg-Warner Corp.** has acquired the Brooks Equipment and Mfg. Co., Knoxville, Tenn. The Brooks Company, which makes the Load Lugger materials handling device, will be operated as a Borg-Warner subsidiary.

A new 250,000 sq. ft. plant for the Parker-Kalon Division of **General American Transportation Corp., Clifton, N. J.,** is now under construction. It is scheduled for completion by December of this year.

Potter & Brumfield, Princeton, Ind., has named Dale V. Cropsey as division vice president in charge of sales.

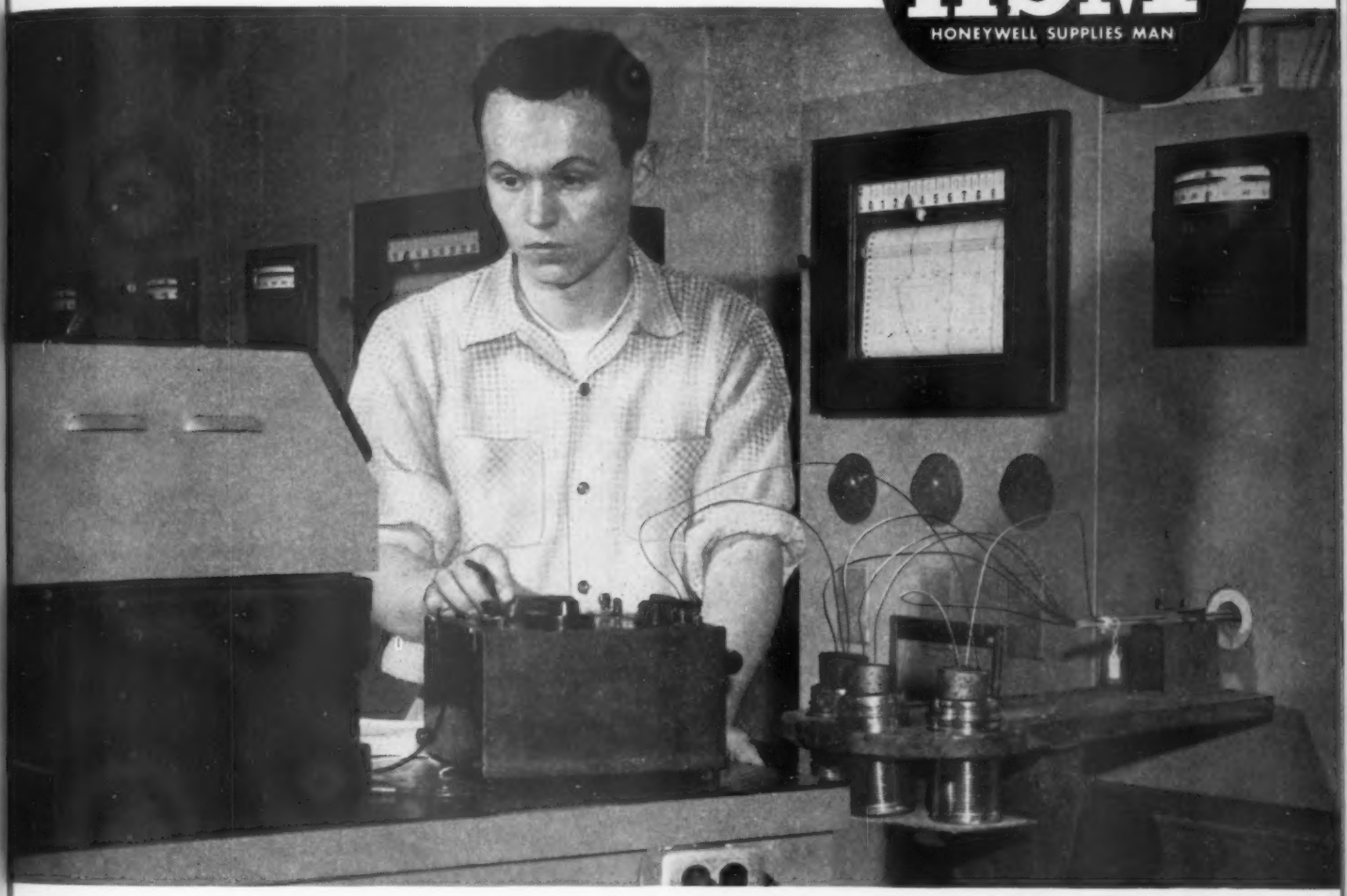
James D. Creamer is now sales representative for Indiana for **The American Screw Co., Willimantic, Conn.**

The Industrial Equipment Co., Joplin, Mo., has been named a distributor of Parker o-rings by **The Parker Appliance Co., Cleveland.**

For More Information Circle No. 661 on Inquiry Card—Page 17→

Lab-tested thermocouple wire *available through your*

HSM
HONEYWELL SUPPLIES MAN



CONNECT a thermocouple with only ± 1% accuracy to an instrument with accuracy of ± ¼% . . . and how closely can you measure? The answer is simple. Overall accuracy *can't* be any better than your thermocouple.

To guarantee you consistent accuracy in your temperature detecting elements, Honeywell maintains a fully equipped wire checking laboratory. Here every spool of thermocouple or extension wire is tested against standard wires that have been certified by the National Bureau of Standards. Checks are made at numerous points throughout the temperature range of the calibration in which the wire will be used. Every spool of wire meets rigid standards before it is accepted. Calibration figures are tagged on each spool.

The result of this laboratory control is that every order of Brown thermocouple or extension wire you receive can be counted on to deliver identical standards of high precision.

Ask your Honeywell Supplies Man to give you complete facts about Brown thermocouple and extension wires . . . and to tell you how the HSM Plan can bring you new convenience and economy in all your purchasing of pyrometer supplies. Call him today at your local Honeywell office . . . as near to you as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR CO., *Industrial Division*, Wayne and Windrim Avenues, Philadelphia 44, Pa.—in Canada, Toronto 17, Ontario.

● **REFERENCE DATA:**
Write for Pyrometer Supplies Buyers' Guide No. 100-6.

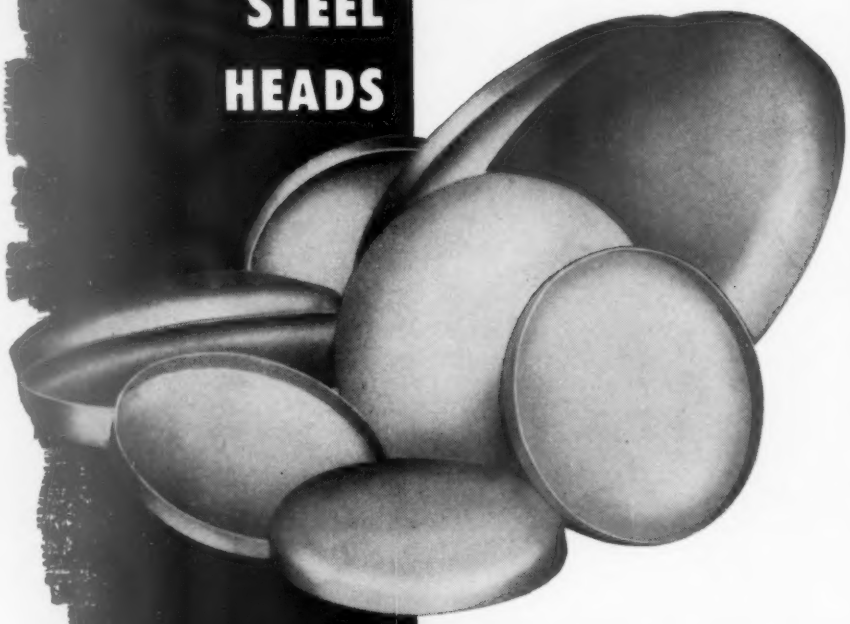
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MINNEAPOLIS **Honeywell**
BROWN INSTRUMENTS
First in Controls

"Heads-up" Service in STAINLESS STEEL HEADS

Fabricators rely on G. O. Carlson, Inc. for stainless steel heads produced to exact specifications and for other components of stainless steel tanks. Shells, flanges, rings, pads as well as spun or press-formed heads are readily available as a packaged service. This eliminates the need of multiple ordering from several suppliers and places responsibility in the skilled hands of Carlson specialists.

Carlson stainless steel heads are produced in a wide range



of sizes and gauges to ASME and standard specifications. Many styles of forming dies are available. There's an up-to-date folder describing these dies—write for your copy now!

Stainless Steels Exclusively

G. O. CARLSON, INC.

Plates • Plate Products • Forgings • Bars • Sheets (No. 1 Finish)

THORNDALE, PENNSYLVANIA

District Sales Offices in Principal Cities

For More Information Circle No. 656 on Inquiry Card—Page 17

Electronic Specialty Co., Los Angeles, has purchased Electromec, Inc., Burbank, Calif., manufacturers of large screen oscilloscopes, swept frequency generators, radar equipment and other electronic units.

The announcement of the promotion of **Frank Lofthus** to purchasing agent has been made by Henry Thorkildsen,



F. Lofthus

director of purchases for Wisconsin Motor Corp., Milwaukee. Mr. Lofthus has been in Wisconsin Motor purchasing since 1939.

Amerigear-Zurn, Inc., Erie, Pa., has been formed as the national sales organization for the flexible couplings and allied power transmission products made by American Flexible Coupling Co., Erie.

New executive appointments in two divisions of the **American Brake Shoe Co., New York,** have been announced. John S. Hutchins, president of Ramapo Ajax Division, has been named president of the National Bearings Division, also. Thomas W. Pettus, a vice president of American Brake Shoe and former president of National Bearing Division, has been assigned to over-all railroad sales. Named executive vice president of National Bearing was Charles M. Ruprecht, president of Electro-Alloys Division since 1953. And, finally, Paul L. McCulloch, Jr., sales manager of Electro-Alloys, has been named to succeed Mr. Ruprecht as division president.

William L. Johnson has been made assistant manager of truck tire sales for **U. S. Tires Division, United States Rubber Co., New York.**

SKF Industries, Inc., Philadelphia, has acquired control of Tyson Bearing Corp., Massillon, Ohio.

Frank M. White, who has been associated with the **Stanley Works, New Britain, Conn.,** for 36 years, has been named vice president of the company's pressed metal division.



This is Illinois Gear

ABOVE:
South Works of the Illinois Gear & Machine Company, Chicago

BELOW:
Main Offices and Works of the Illinois Gear & Machine Company, Chicago

manufacturer of quality gears

Come to Illinois Gear and view these plants fully manned with skilled craftsmen, under the most qualified supervisors. Here is achieved the unique combination of maximum production and precision quality control. One machine out of six . . . one man out of every ten . . . is devoted to quality control.

In these plants are produced the highest quality commercial gears . . . spur, bevel, helical, herringbone, worm and worm gears, etc. . . . ranging in size from eight gears per pound to 80,000 pounds per gear. Countenance no compromise with quality, get the utmost in service, specify and buy ILLINOIS GEARS.

Look for this mark ILL . . . the symbol on finer gears

ILLINOIS GEARS
Reg U.S. Pat. Off.

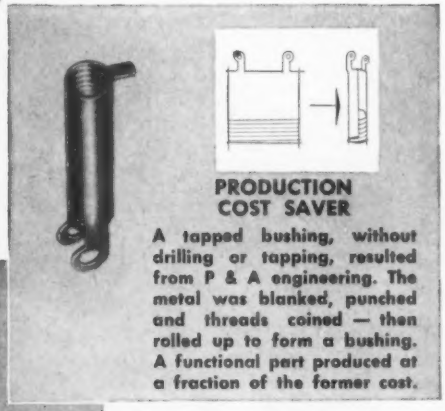
Gears for Every Purpose ... one gear or 10,000 or more

ILLINOIS GEAR & MACHINE COMPANY

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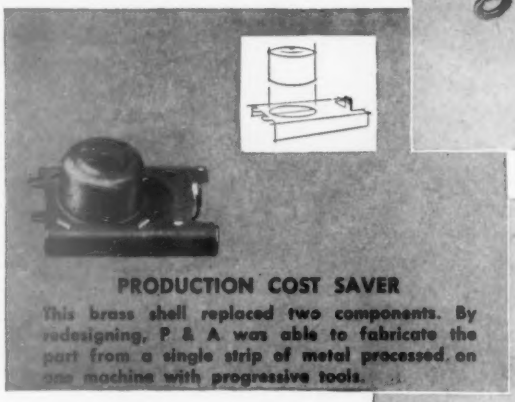
we specialize in production cost savings

. . . and pass the savings along to you!



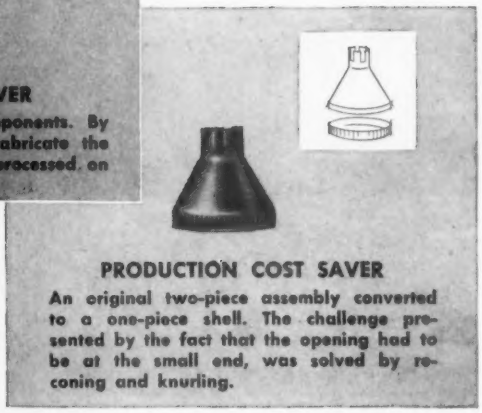
PRODUCTION COST SAVER

A tapped bushing, without drilling or tapping, resulted from P & A engineering. The metal was blanked, punched and threads coined — then rolled up to form a bushing. A functional part produced at a fraction of the former cost.



PRODUCTION COST SAVER

This brass shell replaced two components. By redesigning, P & A was able to fabricate the part from a single strip of metal processed on one machine with progressive tools.



PRODUCTION COST SAVER

An original two-piece assembly converted to a one-piece shell. The challenge presented by the fact that the opening had to be at the small end, was solved by re-coning and knurling.

Send us your parts or blue prints for analysis. In addition to a full report by our staff engineers, our representatives in key cities are immediately available to offer you consulting service. Our Brochure 54-4 tells more about us. May we send you a copy?

P&A

THE PLUME & ATWOOD MFG. CO.

A PANDA PRODUCT

THOMASTON, CONN.

N. Y. Office: 220 Broadway

For More Information Circle No. 665 on Inquiry Card—Page 17

Raycon Corp., manufacturer of high-speed mechanical counters, has moved from its old location in Redwood City to a new building at 248 Harbor Blvd., Belmont, Calif.



L. A. Edwards

The appointment of Lester A. Edwards as assistant sales manager of **The Cincinnati Gear Company** has been announced.

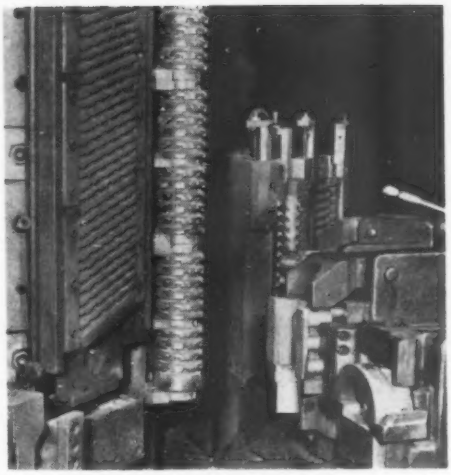
The appointment of **William Paton** as Purchasing Agent for all manufacturing divisions has been announced by Allen B. Du Mont Laboratories, Inc., Clifton, N. J. Since 1948, Mr. Paton has served as purchasing manager for



W. Paton

Du Mont's Television Receiver Division, and has held other positions of increasing responsibility with Du Mont since 1940 in purchasing, production control, and manufacturing administration. His responsibilities will be to coordinate and supervise purchasing activities for the Television Receiver, Cathode-ray Tube, Instrument, Communication Products and Government Manufacturing divisions.

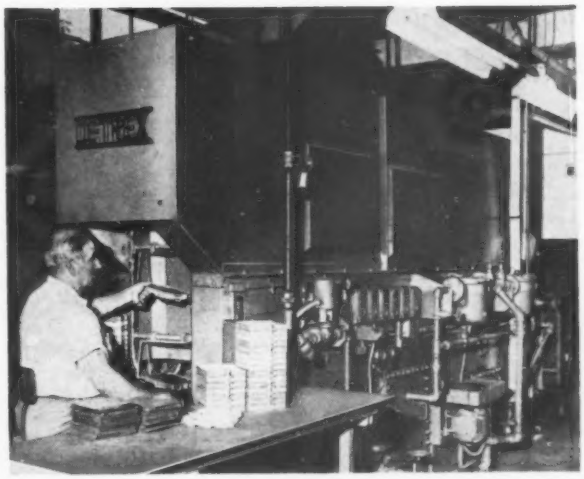
Robert **Lovell** is now manager of aircraft sales for the **Townsend Co., New Brighton, Pa.** The appointment rounds out the newly created Aviation Engineering Sales Division of the producer of cold formed parts and fasteners.



Bearing Cap Broach Life Increased 2500%

Shifting to Carboloy cemented carbide-tipped broaches has increased bearing cap broach life by 2500% at Studebaker's South Bend plant. It has also reduced over-all costs drastically—an estimated 22% on the first run. The work is done on a Cincinnati vertical broaching machine with 2 rams. Speed is 28 sfpm, chip load per tooth 0.005″ for roughing and 0.0015″ for finishing. Former conventional broach had a maximum production of 3600 parts—more often less. After using Carboloy tips, 90,000 parts have been made on one setting.

CIRCLE NO. 159 ON INQUIRY CARD—PAGE 17



Labor Costs Trimmed 25% With Ultrasonic Metal Cleaning Machine

Use of a fully-conveyorized ultrasonic metal-cleaning machine in the electric shave plant of Schick, Inc. has reduced labor costs by more than 25%. In addition, cost savings have been realized through the elimination of rejects by cleaning or lack of cleaning of finely-machined shaver parts. Hand brushing prior to inspection has also been eliminated. The cleaning process is performed by a Detrex Soniclean degreaser, which converts electrical energy into high-frequency sound waves which scrub the parts clean.

CIRCLE NO. 160 ON INQUIRY CARD—PAGE 17



Stitching Replaces Welding Labor Cost Cut 75%

A wire stitcher that forms and drives its own staple from a coil of wire replaces spot welding for fastening heavy sheet metal inner section of freezer cabinets at Ace Cabinet Co., New Bedford, Mass. The stitcher, a Bostitch model S13C, is four times as fast as spot welding. 40 units are assembled per day with the stitcher as opposed to 10 units per day with spot welding. The wire stitcher also provides a more secure fastening, it is reported.

CIRCLE NO. 161 ON INQUIRY CARD—PAGE 17

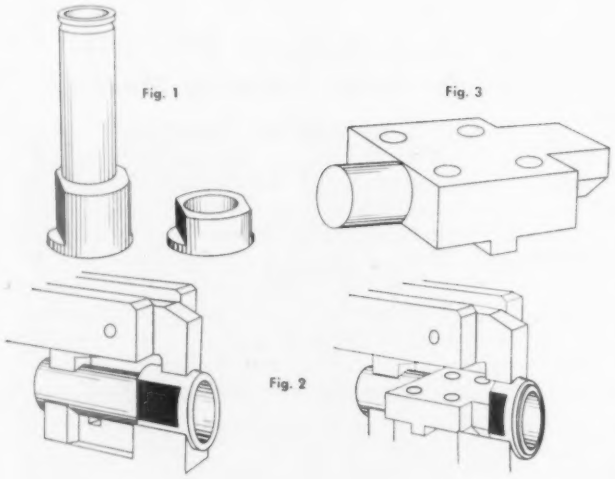
Production Tools . . .



Airless Blasting Eliminates Need of Additional Compressor

Acme Industries, Inc., Jackson, Mich., has to have scrupulously clean metal components in welding and brazing operations for making refrigeration condensors, heat exchangers, etc. The company found that an airblast cabinet it used for cleaning parts was overtaxing the plant's compressed air system to the detriment of other operations. The cost of additional air compressor capacity was saved by adoption of the airless abrasive method of blast cleaning. A Wheelabrator Multi-Table was purchased since it uses this principle.

CIRCLE NO. 162 ON INQUIRY CARD—PAGE 17



Dual-Purpose Broaching Fixture Boosts Production 200%

Colonial Tool Company was producing steel drive blanks of identical diameters and machining dimensions but with different lengths. Parallel flats with a total tolerance of 0.004″ were milled at rates of 120 short blanks and 128 long drive blanks per hour. But production demands were increased, and this rate was insufficient. By straddle broaching the flats, production rates were boosted to 280 short pieces and 240 long pieces per hour without losing time for new setups by using a fixture adaptable to both parts.

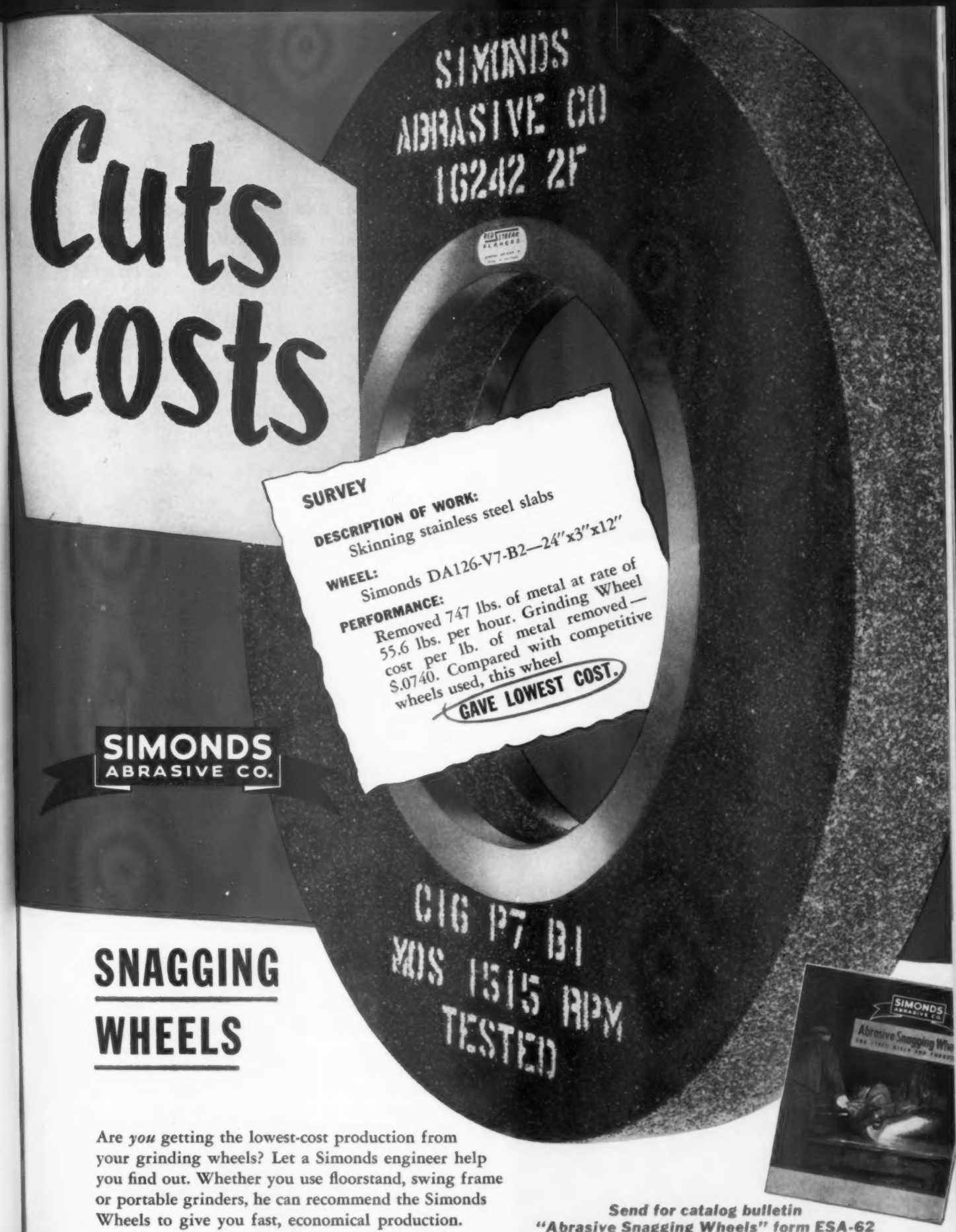
CIRCLE NO. 163 ON INQUIRY CARD—PAGE 17



Riveter Saves $69.98 per Hour

In fastening two pieces of flat iron to an angle iron, a Wisconsin company drove 20 rivets per hour by hand with a hammer and rivet set. Output per man jumped to 720 rivets per hour when an Ingersoll-Rand Air Buck riveter mounted on a bench, with a foot pedal to open and close the throttle, was used. This meant a unit cost saving in driving a single rivet of $.0972. Output of 720 rivets per hour times $.0972 equals $69.98 saved per hour.

CIRCLE NO. 164 ON INQUIRY CARD—PAGE 17



SNAGGING WHEELS

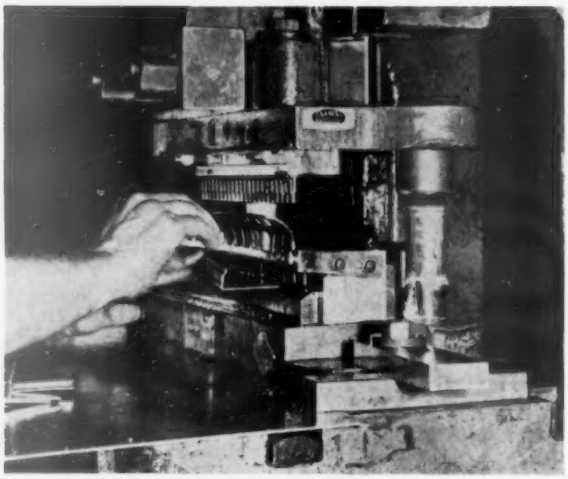
Are *you* getting the lowest-cost production from your grinding wheels? Let a Simonds engineer help you find out. Whether you use floorstand, swing frame or portable grinders, he can recommend the Simonds Wheels to give you fast, economical production.

Send for catalog bulletin "Abrasive Snagging Wheels" form ESA-62

SIMONDS ABRASIVE COMPANY • PHILADELPHIA 37, PA.

Branch Warehouses: Boston, Detroit, Chicago, Portland, San Francisco • Distributors in Principal Cities
Division of Simonds Saw and Steel Co., Fitchburg, Mass. • Other Simonds Companies: Simonds Steel Mills, Lockport, N.Y., Simonds Canada Saw Co., Ltd., Montreal, Quebec and Simonds Canada Abrasive Co., Ltd., Arvida, Quebec

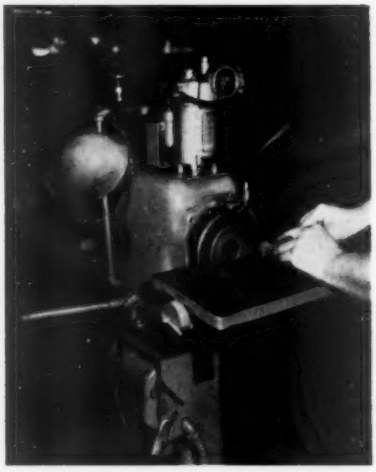
Production Tools . . .



Magnets Eliminate Scrap Losses

Hart & Cooley Mfg. Co., Holland, Mich. uses an 85 ton press to punch holes in the frame sections of warm air heating and air conditioning grills it makes. 14 to 24 holes are punched simultaneously in each steel frame. The operator used to pick up a frame, position it against the die stop and trip the press. Alignment of the holes was off occasionally—and this could cause an entire assembly to be scrapped. To lick the scrap problem, two Carboloy permanent magnets were inserted in the die. The magnets pull the part tightly (and automatically) against the die, eliminating chances of misalignment.

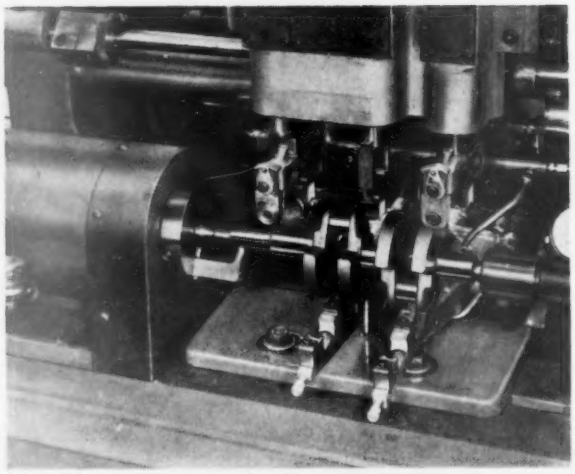
CIRCLE NO. 165 ON INQUIRY CARD—PAGE 17



Life of Diamond Grinding Wheels Increased Up to 500%

American Chain & Cable Co., Reading, Pa. has a Criterion grinder for servicing single point carbide top tools and a Heald automatic carbide tool grinder. Before installation of Alemite Oil-Mist, the Criterion grinder required wheel replacement every two months. Now it's necessary every twelve months. With the Heald grinder, wheel life has increased from four months to more than fourteen months. The system more than paid for itself in its first year of operation.

CIRCLE NO. 166 ON INQUIRY CARD—PAGE 17



Two-in-One Finishing Machine Does Job 60% Faster Than Before

West Bend Aluminum Company uses a Gisholt Model 51-A Superfinisher, tooled to finish simultaneously both main and pin bearings on a variety of crankshafts. In 35 seconds, floor-to-floor time, bearing surfaces are finished from 30 to 40 micro-inches down to 10 to 15 micro-inches R.M.S. Crankshafts are finished 60% faster than before. Time and money are saved over previous methods, and products finished perform better and last longer.

CIRCLE NO. 167 ON INQUIRY CARD—PAGE 17



¼-inch Holgun*—powered for continuous production drilling, yet weighs only 3¼ pounds.



¼-inch Tapgun*—threads holes in steel, cast iron, brass, aluminum.



No. 12 Scrugun*—one of 21 models to drive all types of common screws.

Black & Decker "Triplets" solve toughest production problems faster, better, cheaper!

The power, speed and accuracy of the Black & Decker "Triplets"—famous Holguns, Tapguns and Scruguns — are your answer to faster, better production, reduced operator fatigue, lower costs. They're all powered by B&D-built motors, tailor-made for the specific tools they drive. They're all perfectly balanced, and feature the B&D-originated "pistol-grip-and-trigger-switch" for far easier handling. These features and more make these tools ideal for trouble-free assembly line operations.

Let your nearby B&D distributor demonstrate these "Triplets" and show you how they can help solve *your* problems. For a free catalog of the complete line of B&D Tools, write: THE BLACK & DECKER MFG. CO., Dept. 1706, Towson 4, Maryland.



For nearest distributor, see "Tools-Electric."

LEADING DISTRIBUTORS EVERYWHERE SELL

Black & Decker®

PORTABLE ELECTRIC TOOLS

*T. M. Reg. U. S. Pat. Off.



Air Powered Vise Cuts Clamping Time 10%

Production snags, caused by manual clamping of castings, have been eliminated by the Hills-McCanna Co. of Chicago on a finish grinding operation. With a manual vise, either too tight or too loose a setting would damage the castings. Also, time was lost in setting and resetting the vise each time the operator turned a work piece. These problems were overcome with an air-powered hydraulic Wilt-O-Matic vise. The operator can pre-set it to the exact pressure needed to hold the castings firmly. This has ended slippage and metal damage and effected a 10% reduction in clamping time.

CIRCLE NO. 168 ON INQUIRY CARD—PAGE 17



Threaded Rod Production Up 25%

Midwest Wire Products is producing threaded automobile seat lock rods at an average of about 500 pieces per hour, with 4500 pieces threaded between grinds of the chasers, on a Landis 3/8" threading machine. Best previous methods never produced more than 400 pieces per hour, and completed only 2500 pieces before the chasers had to be reground.

CIRCLE NO. 169 ON INQUIRY CARD—PAGE 17



Process Costs Slashed With New Lubrication System

A tapping machine at a leading manufacturer of electrical components using up to 12 taps, was formerly equipped with a flood system for tap cooling and lubricating. Parts coming from the machine were so thoroughly covered with oil that they had to be drained and then wiped before the next operation. Splashing of coolant over floor resulted in hazardous working conditions. After a Norgren spray-lube system was installed, parts were no longer flooded with oil. Thus the time and labor consuming procedures of draining and wiping were eliminated and working conditions were safer.

CIRCLE NO. 170 ON INQUIRY CARD—PAGE 17



Come to EX-CELL-O

FOR FAST, ECONOMICAL PRODUCTION OF PARTS

With a staff of process engineers, modern and complete manufacturing facilities, and skilled personnel the Ex-Cell-O organization can produce quality parts to your specifications and in quantities to meet your production schedules. Our complete, modern testing laboratory is well equipped to handle both physical and chemical tests and analyses. Facilities include:

PRODUCTION MACHINES

Vertical Turret Lathes • Automatic Screw Machines • B & S Automatics • Ex-Cell-O Bor-Drill and Gun Drilling Machines • Engine Lathes • Centerless O.D. Grinders • Centerless I.D. Grinders • Form Grinders • Plain I.D. Grinders • Surface Grinders (plain and rotary) • Milling Machines • Thread Milling Machines • Thread Rolling Machines • Criden Threaders • Broaching Machines • Groove Grinding Machines • Flat and Cylindrical Lapping Machines • Production Honing Machines • Special High Production Equipment • Ex-Cell-O Precision Boring Machines and Thread Grinders equipped for high production.

HEAT TREATMENT

Induction Heat Treating • Sub-Zero Treating Equipment • Atmosphere Controlled Furnaces • Carburize Furnaces • Hydrogen Furnaces • Black Oxide Tanks • Nitriding Furnaces • Cyanide, Lead and Neutral Salt Pot Furnaces • Sand and Vapor Blast Equipment • Tumbling Equipment.

XLO
EX-CELL-O for PRECISION

Let this famous precision manufacturer produce your parts and unit assemblies

Within its own plants, Ex-Cell-O has developed highest efficiency in the economical use of machines and cutting tools. This applies to any job requiring either standard or special production facilities; and it's based on many years of experience as one of the world's largest manufacturers of machine tools and cutting tools.

Over these years, volume production of parts by the most economical modern methods has been an important part of Ex-Cell-O's business. Today, Ex-Cell-O is equipped to serve you as never before . . . Let's discuss it.

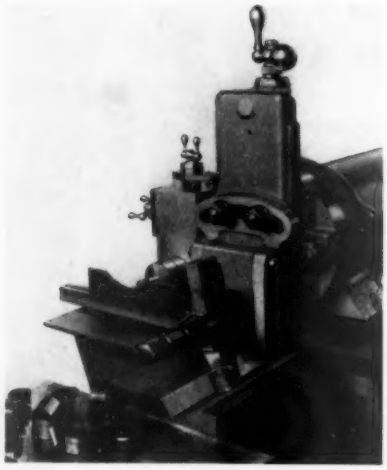
Contact your local Ex-Cell-O representative, or send your part, print, or sketch to Ex-Cell-O in Detroit.

EX-CELL-O CORPORATION

DETROIT 32, MICHIGAN

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Production Tools . . .



Bridge Bearing Plates Machined in 73% Less Time

The application of a follower equipped Cincinnati shaper reduced operation time for machining bridge bearing plates from 75 minutes to 20 minutes at the Buffalo plant of Ernst Iron Works. In one 20-minute floor to floor operation, this shaper accurately produces a radial bearing seat that formerly required two setups and two machining operations.

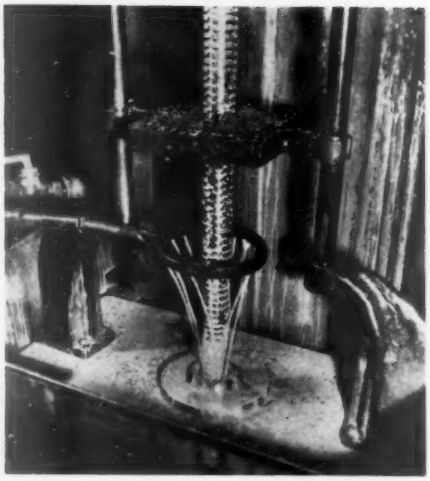
CIRCLE NO. 171 ON INQUIRY CARD—PAGE 17



Torch Cutting Machine Works Four Times Faster

The steel cutting machine, designed by Luria Engineering Co., Bethlehem, Pa., was shown in a test by a fabricator of structural steel to cut four times as fast as the conventional saw machine. It attains its record speed by means of three acetylene-oxygen torches that cut heavy structural steel on all sides simultaneously to any bevel with 1/32 of an inch. It cuts wide steel beams in less than two minutes compared with eight minutes for mechanical saws.

CIRCLE NO. 172 ON INQUIRY CARD—PAGE 17



Brushing Fixture Cuts Broached Spline Rejections 12%

When cutting internal splines in steel gear forgings at the Louisville, Ky. plant of International Harvester, the broaching bar would quickly load up with chips, causing rough and inaccurate pieces and a high rate of rejections. Osborn Mfg. Co. recommended mounting four of its power brushes around the broaching bar. The brush bristles, made of .005 steel wire, remove chips on the machine's up-stroke. This has reduced part rejections by 12% and considerably increased broach life.

CIRCLE NO. 173 ON INQUIRY CARD—PAGE 17

NICKEL-LUME

FOR BRIGHT NICKEL BARREL PLATING

The H-VW-M Nickel-Lume Barrel Plating Process is ideal for producing bright-from-the-barrel decorative nickel coatings on small automotive parts, jewelry, novelties, nail clippers, files, hardware, fasteners, screws, and similar items. The new process is an application of Nickel-Lume, which made its appearance a year ago as an outstanding development in a bright nickel for rack plating.

Barrel installations have been in operation in the field for some time with many enthusiastic users. An important feature of this bright-nickel barrel process, is the consistency of color maintained even in recessed areas, as in hard-to-plate threaded parts. Subsequent chromium plating can be handled with ease since the nickel deposit is very active and, unlike many bright barrel processes, is not brittle.

Advantages of Nickel-Lume Barrel Plating are:

Uniform Brightness—deposits, right out of the barrel, are uniformly bright with a pleasing "clean," white color even in hard-to-plate areas.

Low Stress—deposits are ductile and have a low compressive or tensile internal stress.

Activation Not Required—no activation is required between the nickel and chromium or other subsequent deposits.

High Tolerance To Impurities—organics are tolerated in greater concentrations than in other bright baths.

Complete Control—complete analytical control of all constituents.

Wide Operating Range—current density and temperature have a wide range with no resultant loss of brightness.

Good Corrosion Resistance—nature of the addition agent plus constant deposit characteristics give a high level of protection to the plated surface.

Stability—not a "fussy" bath—remarkably stable over long periods of operation.

Nickel-Lume for Barrel Plating is the direct result of continuous research conducted at H-VW-M . . . another example of Platemanship in action. Complete details and a new instruction manual will be forwarded on request.

PLATEMANSHIP

Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing—of a complete equipment, process and supply line for every need.

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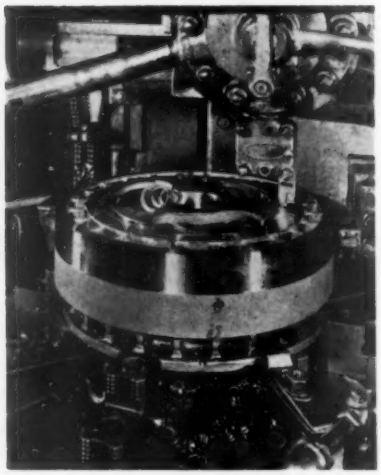
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←For More Information Circle No. 676 on Inquiry Card—Page 17

For More Information Circle No. 677 on Inquiry Card—Page 17

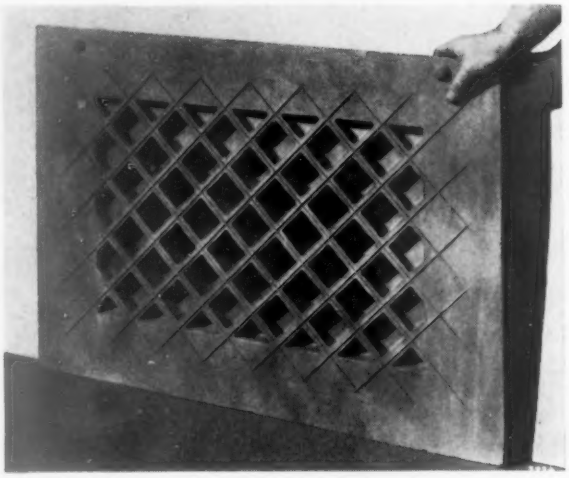
Production Tools . . .



Machine Downtime Costs Cut from $60 to $1

A Chicago mining machine manufacturer formerly used as many as 16 clamp-on type carbide tools to make a single facing cut on a part made from 1045 low carbon, high manganese cast steel with a hardness of 40 scleroscope. A carboloy grade 370 carbide tool was substituted on the job. It dropped overall machining costs by almost 70%. At the same time it reduced machine downtime costs from $60 to $1 and regrinding costs from approximately $30 to nothing.

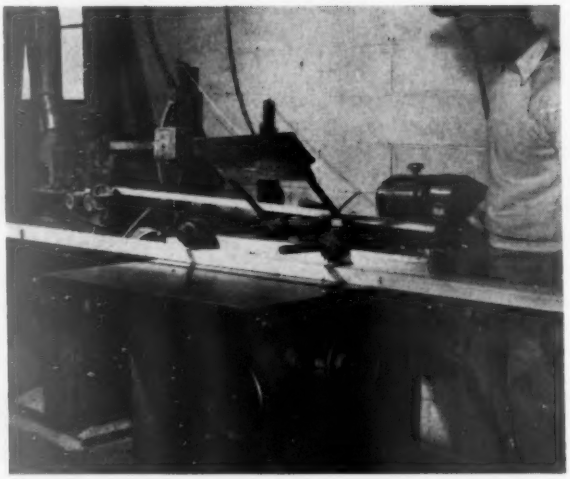
CIRCLE NO. 174 ON INQUIRY CARD—PAGE 17



Shell Molding Saves Months of Delivery Time on Castings

Delivery time on castings used to mold foam rubber pillows was estimated by Aluminum Match Plate Corp. at eight months. By using shell molding—with molds formed from sand and phenolic resins supplied by Durez—the company was able to cut delivery to eight weeks—a saving of six months in production time. Shell molding, which was done with a two-man crew of limited experience, reduced the weight of the castings by about 22 pounds.

CIRCLE NO. 175 ON INQUIRY CARD—PAGE 17



Feed Attachment Halves Sawing Time

Using a Delta 12" circular saw with a power feed attachment, the Gordon Mfg. Co., Flint, Mich., cuts rails of ponderosa pine, used in Venetian blinds, in half the time previously needed. Prior to acquisition of the feed attachment, a man had to push stock through the saw 4 or 5 times and then push strips through shaper. Now, the operator merely starts stock until gripped by the attachment which automatically pulls it along. This enables operator to push a strip through shaper, while saw is cutting another strip.

CIRCLE NO. 176 ON INQUIRY CARD—PAGE 17

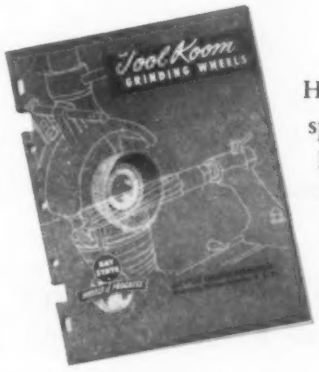
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Quality cutting tools boost production and cut costs *only* if they are kept in quality condition! For single point tools or complicated cutters . . . steel or carbide . . . there is a BAY STATE wheel to keep quality high and cutting performance at peak efficiency.

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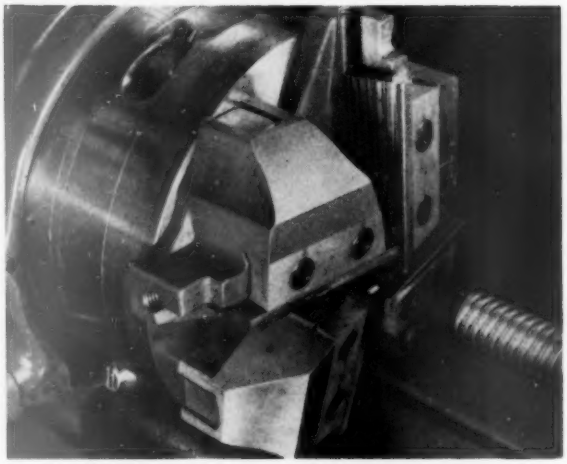
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For More Information Circle No. 679 on Inquiry Card—Page 17

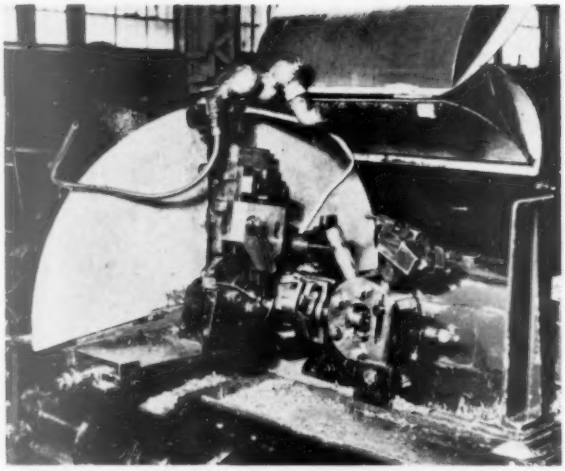
Production Tools . . .



Better Finish, Enormous Time Saving With Threading Machine

The Cooper Alloy Foundry Co. is using a Landis Machine Company Landmaco threading machine to great advantage in the production of stainless steel valves. In one operation, valve stems are threaded with a full 15⅞" thread in 2.5 minutes floor-to-floor time—as against 204 minutes by the previous method. Both thread finish and concentricity are better than those obtainable by the old method. Large savings are also being made in set-up time and tool cost.

CIRCLE NO. 177 ON INQUIRY CARD—PAGE 17



Automatic Marker Cuts Production Labor Time

Similar appearing products with different applications present a problem to manufacturers. Often the wrong part is shipped to a customer. Volume production of both sweat-type and pipe-threaded plumbing valve bodies presented such a problem to Brass-Craft Mfg. Co., Inc., Detroit, Mich. Errors of misdirection have ceased since the company installed a New Method automatic marker at the final machining station. It saves 2 to 3 seconds over a separate "swing marking" operation and is many times faster than a secondary marking operation.

CIRCLE NO. 178 ON INQUIRY CARD—PAGE 17



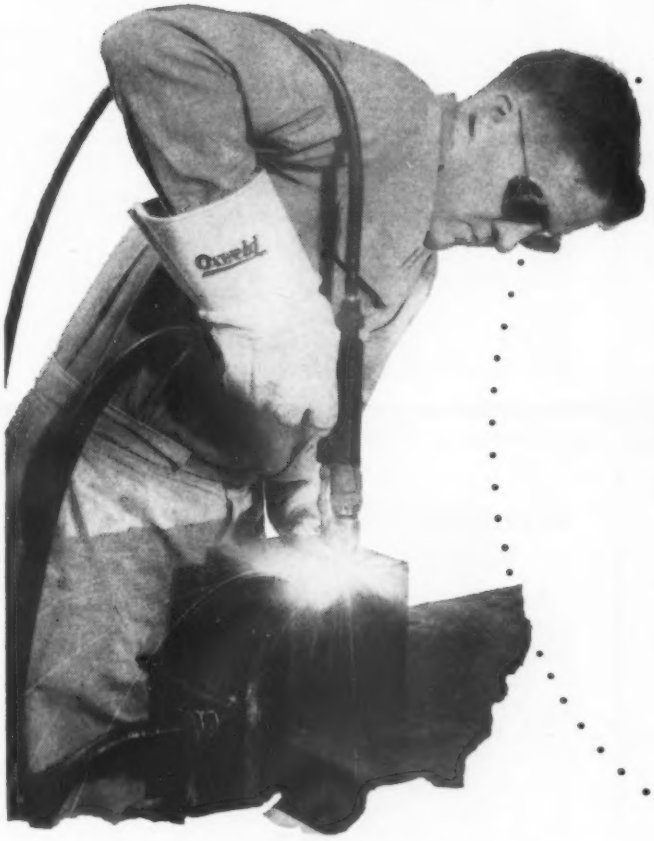
Air Sanders & Grinders Triple Output: Save $318.24 per Day

One company had the problem of removing milling cutter marks and deburring holes from steel forgings used for airplane flap tracks. It used to use flexible shaft grinders for these operations. It switched to Ingersoll-Rand air operated sanders and grinders for this work. The result: Output tripled. Currently 9 men work on these operations—whereas, 27 would be required if the old method were still used. This is a saving of $318.24 per day in labor cost based on wages of $2.21 per hour.

CIRCLE NO. 179 ON INQUIRY CARD—PAGE 17

Spot, Plug, and Tack-Weld

with the new SIGMA SPOT-WELDING *process*



- Joins metals up to ¼-in. thick
- Adds filler metal automatically
- Welds from one side of the joint
- Shields weld area with inert argon gas
- Operates on Constant Potential power supply

Spot, plug, and tack-weld with one torch. With sigma spot-welding you can make strong spot welds quickly on lapping metal sheets up to ⅛-in. thick, plug and tack-welds on metals up to ¼-in. thick—and you need access to only one side of the weld joint. Use it on carbon, galvanized, or stainless steel, and copper-base alloys.

It's easy to use. Position the "muzzle" of the water-cooled torch and squeeze the trigger—the machine does the rest. A consumable wire electrode is fed into the weld area as filler metal. Inert argon gas protects the weld from the air. You can make up to 10 welds a minute, with a completely automatic welding cycle.

Constant Potential adds to efficiency. Sigma spot-welding equipment operates on constant potential power supply to give you the benefit of simplified controls, sure starting, and precise arc voltage. Weld-cratering and wire-sticking are eliminated. Welds are smooth and consistently uniform.

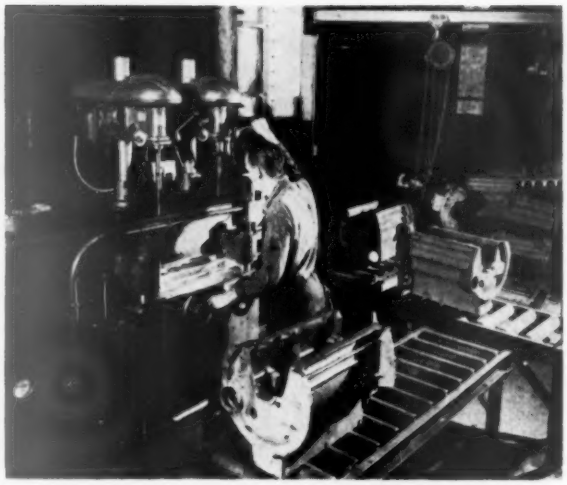
Your local LINDE representative will be pleased to give you booklet F-8778 and more detailed information on the sigma spot-welding process.

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For More Information Circle No. 680 on Inquiry Card—Page 17

Production Tools . . .



Drilling Operations Picked Up at No Labor Cost

J. I. Case Co., of Racine, Wis., found a way to turn spare time into production time by mounting two Delta 17-inch drill press heads, columns, and flanges on top of a broaching machine. While the broaching machine completes a main bearing block, the operator drills and reams two ⅝-inch locating holes in the pan rail of a motor block. Thus, the operator makes use of what would otherwise be idle waiting time.

CIRCLE NO. 180 ON INQUIRY CARD—PAGE 17



Microcast Process Cuts Costs 43% in Production of Indentor Die

An indentor die, formerly machined in 14 operations from 6150 alloy bar stock, is now manufactured by the Microcast method of investment casting at the Microcast Division of Austenal Laboratories, New York City. The indentor die, used in a ratchet-controlled tool for installing coaxial cable connectors, is cast from 6150 alloy, and no change in design, durability, or function is necessary. The elimination of expensive machining operations has resulted in a 43% cost saving per die.

CIRCLE NO. 181 ON INQUIRY CARD—PAGE 17



Automatic Deburring Saves $2000 Monthly

Racine Die Casting Co., Racine, Wis., formerly used manual methods—punching, scraping, filing, etc.,—for deburring and deflashing aluminum and zinc die castings. Difficulties were experienced with castings to which paint would not adhere and with porous castings. The company switched to automatic deflashing and deburring with a Wheelabrator airless abrasive blasting machine. Castings to which paint would not adhere or which were otherwise unsatisfactory can now be culled out by visual inspection. As much as $2000 per month has been saved.

CIRCLE NO. 182 ON INQUIRY CARD—PAGE 17



85% Fewer Rejects, 20% Less Heating Time With Salt Baths

Clutch levers and roller-bearing thrust plates are critical items in heavy duty clutches made by Lipe-Rollway Corp. Rejects (due to distortion) on these items from a conveyor-type furnace were running so high that a new processing method was sought. Following installation of an Ajax electric salt bath furnace the reject rate was cut 85%. In addition, over-all heating time was reduced 20%, and maintenance costs were lowered substantially.

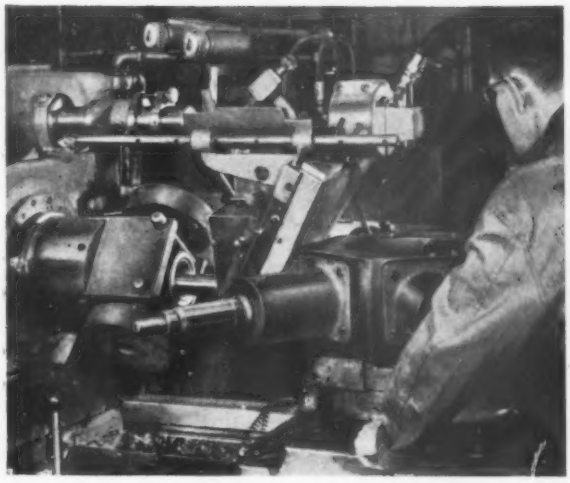
CIRCLE NO. 183 ON INQUIRY CARD—PAGE 17



Plastic Molding Time Cut 90% in Special Press

American Insulator Co., New Freedom, Pa., now uses a 100-ton Farquhar press for molding reinforced fiberglas plastic parts. Cycle time for the operation is six minutes. With the old method, this same operation would take sixty minutes. In addition to substantially reduced costs, closer tolerances and better quality also result from use of the more modern equipment.

CIRCLE NO. 184 ON INQUIRY CARD—PAGE 17

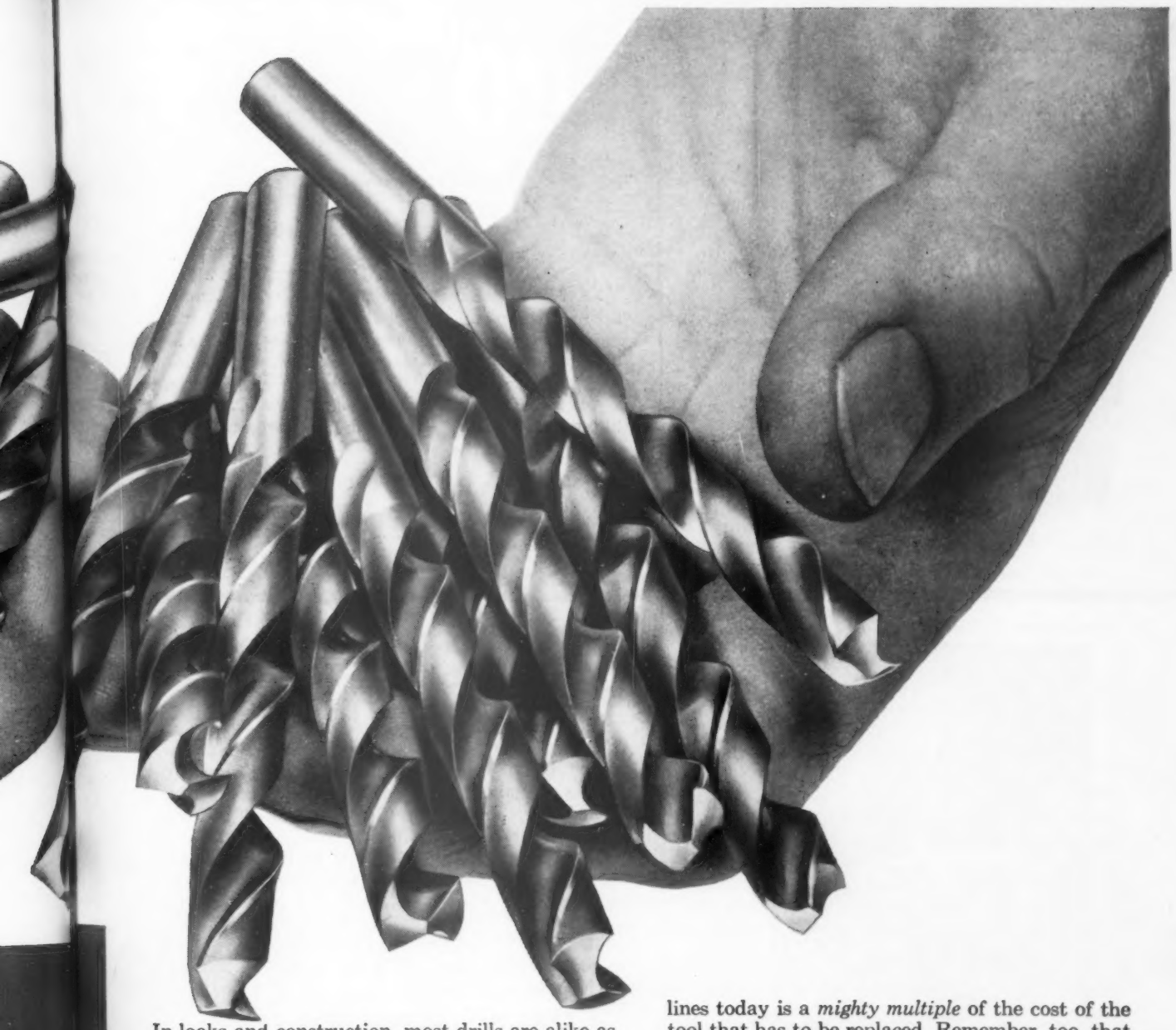


Lathe Attachment Increases Valve Body Production By 25%

Mission Manufacturing Co., Houston, has increased production of steel valve bodies by 25% through installation of a JETracer unit on its Gisholt 3L saddle type turret lathe. The unit is self-contained and mounted on a single face of the hexagon turret. It does not restrict use of the overhead pilot bar. A low cost, standard, single-point tool replaces expensive sizing tools. Time is saved on gauging, since only one diameter needs to be checked. Chance for human errors is done away with in boring operations.

CIRCLE NO. 185 ON INQUIRY CARD—PAGE 17


"Sure, all Drills
look alike . . . until you
LOOK AT
THE SCORE!"



In looks and construction, most drills are alike as peas in a pod. *But the all-important difference is in the accuracy and quantity of the holes they cut.* So when you come right down to it, the price of the drill itself means little. It's the *cost-per-hole-produced* that really counts.

Look at it this way: An increase of 10% in production . . . plus an automatic reduction in set-up and down-time . . . can make the difference between profit and loss on any production job. On top of that, the assurance that every hole is accurate and uniform means that spoilage and reworking are practically eliminated. And remember that the cost of down-time on most production lines today is a *mighty multiple* of the cost of the tool that has to be replaced. Remember, too, that it takes only one sub-standard drill in a gross to wipe out any saving that may have been made on the tool-purchase.

Now . . . if you want the real score on drill performance (and on the complete line of Morse Cutting Tools) just ask your Morse-Franchised Distributor. He's the man you can always bank on for the tops in quality and the best in service.

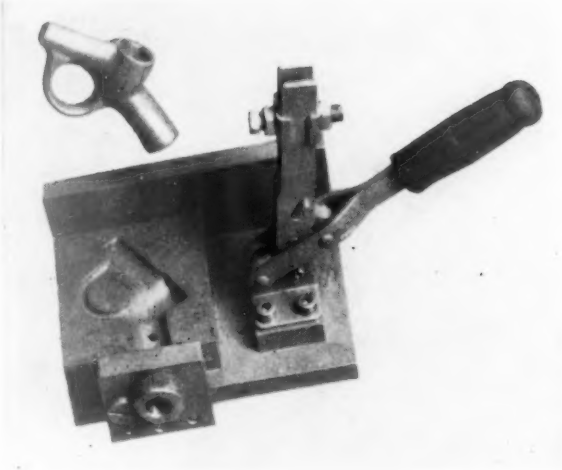
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Cutting Tools

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For More Information Circle No. 682 on Inquiry Card—Page 17

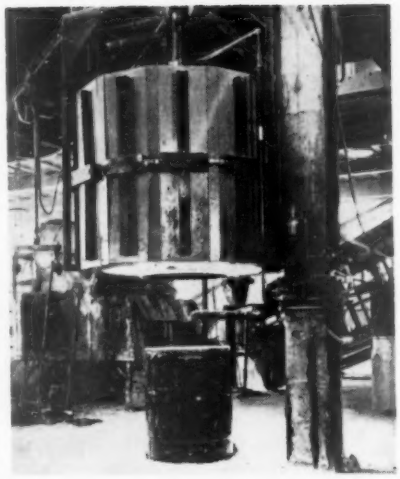
Production Tools . . .



Tooling Cost Slashed With Plastics

St. Anthony Machine Products Co. of Minneapolis, uses plastics to reduce the weight of machine shop tools and lower their cost. A sample of economies effected is the case of a particular jig. Made of steel, it weighed 1800 lb and cost about $2300. When it was duplicated with a combination of plastic and steel, the weight totaled but 300 lb and the cost $450.

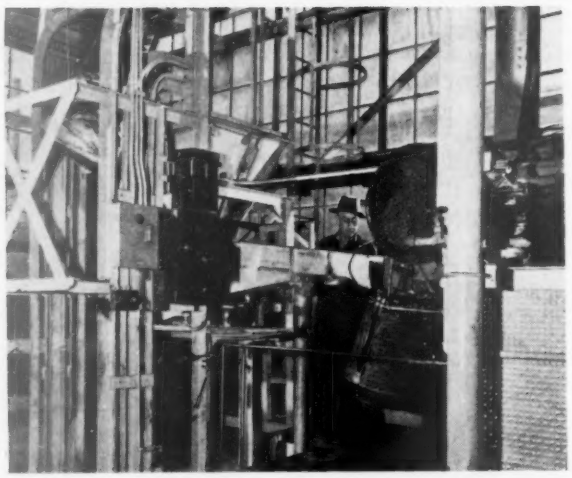
CIRCLE NO. 186 ON INQUIRY CARD—PAGE 17



Radiant Oven Empties Pitch Drums in 80% Less Time

Armstrong Cork Co. receives pitch in its Kankakee, Illinois plant in 55-gallon steel drums. To empty the sticky pitch so it can be processed, it is necessary to heat the drums to get it to flow. Armstrong used to manually heat the outside of the drums with an open gas flame. This took 20-30 minutes per drum. A new Fostoria radiant oven empties one drum every six minutes with no manual labor involved. Because of the fast even radiant heat, no pitch is wasted. The oven is expected to pay for itself in one year with savings in material alone.

CIRCLE NO. 187 ON INQUIRY CARD—PAGE 17



Plating Output Increased 150%; Two Men Do The Work of Three

Three Stevens full automatic barrel plating machines, plus mechanical loading and unloading, have helped Ford Motor Co. boost its plating output on one operation by 150%. The new set-up produces 3000 lbs. of parts an hour—the old rate was 1200. A basket loaded with parts moves through the plating cycle, then the parts are dumped into the cleaning operation. After cleaning they flow through an inclined tube into drums, which are moved away by roller conveyor. The whole job is handled by two men —the old way took three.

CIRCLE NO. 188 ON INQUIRY CARD—PAGE 17

files "on the jump?

CALL YOUR SIMONDS DISTRIBUTOR

Who offers you all these services and savings . . . *and more?*

YOUR SIMONDS DISTRIBUTOR . . . he carries ample stocks that would tie up your own funds.

YOUR SIMONDS DISTRIBUTOR . . . he's your nearest and quickest source of supply, any hour of the day or night.

YOUR SIMONDS DISTRIBUTOR . . . he simplifies your purchasing by handling your needs for many items . . . all under one order, one bill, one payment.

YOUR SIMONDS DISTRIBUTOR . . . he's an up-to-the-minute "mine of information" on new equipment, materials, parts . . . and on new techniques of engineering, production, maintenance.

YOUR SIMONDS DISTRIBUTOR . . . he knows his book on the full line of SIMONDS PRODUCTS for cutting metal, wood, pulp and paper. And he knows how to make sure that you get the best results out of the finest line of tools made today . . . Simonds red-trademarked tools that are 100% quality-controlled from steel to finish-grinding.

Add up all these (and more) savings and services, and you can see why it pays to

BUY SIMONDS QUALITY PRODUCTS FROM YOUR SIMONDS DISTRIBUTOR

SIMONDS
SAW AND STEEL CO.
FITCHBURG, MASS.

Factory Branches in Boston, Chicago, San Francisco and Portland, Oregon, Canadian Factory in Montreal, Que., Simonds Division: Simonds Steel Mill, Lockport, N. Y. Simonds Abrasive Co., Phila., Pa., and Arvida, Que., Canada



NEW MILLERS FALLS No. 50C ELECTRIC SCREW DRIVER

- TWICE THE DRIVING POWER
- GREATER CAPACITY — wood screws up to #12 x 1½" — machine screws to ¼"
- MUCH LONGER BRUSH LIFE
- BUILT-IN REVERSING SWITCH
- INTERCHANGEABLE SWITCH LEVERS (Paddle or Butterfly)

Plus

the famous, super-sensitive ADJUSTOMATIC® CLUTCH



For years, the Millers Falls No. 50 has been the most successful of all electric screw drivers. Now — in this remarkable new Model 50C — it's even better — more powerful, more versatile than ever before.

In fact, its range of uses is so wide that it entirely supersedes and replaces all four of the previous No. 50 and No. 52 Series screw drivers.

Whether you are assembling delicate eyeglass frames with tiny optical screws or driving 1½" #12 screws in hardwood, you can count on the new 50C for outstanding performance. It's fast, powerful and dependable — and the patented "Adjustomatic" Clutch assures velvet smooth operation with precision torque control month after month.

FREE DEMONSTRATION

Let us show you how the new No. 50C Screw Driver cuts assembly time — gives better, more uniform work at lower cost. Write, too, for literature on the 50C and on Millers Falls wide line of other high-performance electric tools for production and maintenance.

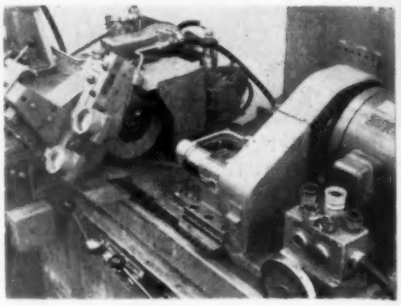
MILLERS FALLS COMPANY
Dept. PR-7, Greenfield, Mass.

MILLERS FALLS TOOLS SINCE 1868

The Mark of Superiority

For More Information Circle No. 685 on Inquiry Card—Page 17

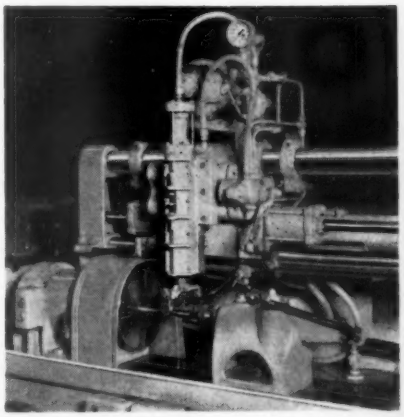
Boring and Grinding Combined, Cycle Time Cut 60%



A leading manufacturer in the electrical industry replaced two machines with a Heald Model 171 internal grinder. The new machine is equipped with a slide bar arrangement that carries boring tools so that boring and grinding operations can be done on one machine. The steel stator section of a motor is ground in the conventional way, then the slidebar bores two aluminum housing diameters. With the new set-up, cycle time has been cut from 2½ minutes to 1 minute. Also improved are size tolerance, concentricity, and finish.

Circle No. 189 on Inquiry Card—Page 17

Superfinishing Operation Ups Oil Seal Life 700%



Woodward Governor Co. of Rockford, Ill. uses a Gisholt Superfinisher to superfinish component parts of engine governors. Parts so processed include a drive shaft, power piston, pilot valve, and rotating bushing. Before superfinishing parts have a finish of 10 micro-inches; after processing, finish is 3 micro-inches. Production is at the rate of 40 pieces per hour. At negligible cost, superfinishing assures oil-tight seals and at least eight times longer seal life by removing all amorphous "smear metal."

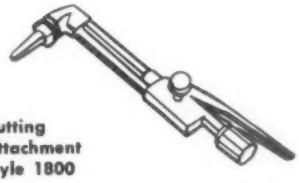
Circle No. 190 on Inquiry Card—Page 17

For More Information Circle No. 686 on Inquiry Card—Page 17→

AN AIR REDUCTION PRODUCT

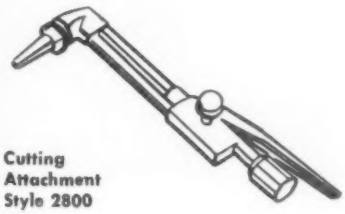
AIRCO items for welding and cutting

To convert an Airco style 800 general purpose welding and heating torch to a cutting torch, you need only add either the Airco Style 1800, or 2800 cutting attachment.



Cutting Attachment Style 1800

For medium duty work use the Style 1800. Available with either a 75° or 90° head, this attachment has a ⅝" tip seat to fit all Airco cutting attachment tips. Designed for cutting jobs from thin sheet up to 6" plate.



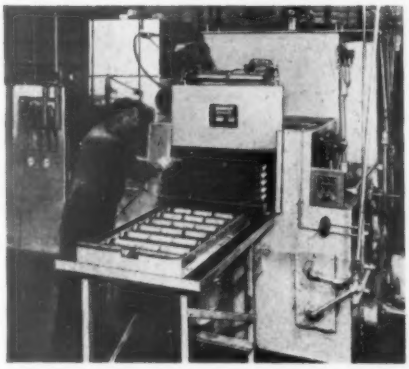
Cutting Attachment Style 2800

For heavy duty work, use the Style 2800. This attachment has a ¾" tip seat that will fit all Airco tips used with the Airco 3000 and 9000 series hand cutting torches. With this attachment, cuts up to 8" deep may be made. Like the medium duty attachment, the Style 2800 is available with either a 75° or 90° head.

WRITE AIRCO FOR LITERATURE ON THESE ITEMS

For More Information Circle No. 687 on Inquiry Card—Page 17

Carburizing, Carbonitriding Furnace Cuts Costs 90%



The Sunbeam Stewart Autocarb gas carburizing and carbonitriding furnace has cut costs 90% and increased heat treating production over 20 times for a midwest manufacturer. While designed primarily for batch operation of gas carburizing and carbonitriding, due to its flexibility it is also used for clean hardening, martempering, controlled atmosphere annealing and normalizing.

Circle No. 191 on Inquiry Card—Page 17

Carbide Tool Lasts 30% Longer, Lasts 10 Hours Between Grinds

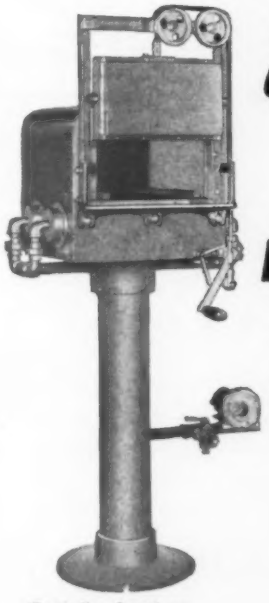
A northeastern U. S. manufacturer found that it could get 30% better performance and tool life of 10 hours between grinds with Carmet CA-610 carbide cutting tools. The job was machining a Flamhard casting heat treated to 325 Brinell and weighing 670# on a King vertical boring mill.

Circle No. 192 on Inquiry Card—Page 17

Spiral Fluted Taps Increase Production; Cut Tap Failure

Stainless steel forgings were being tapped by a company at a rate of 25 surface feet per minute with ½-14 NPT ground thread straight flute taps. However, they could not tap more than 100 parts before the the tap failed and tore the threads. Higher or lower cutting speeds did not alter the failure. Using Hy-Pro Tool Co. spiral fluted taps, the company could tap an average of 320 parts at a cutting speed of 45 surface feet per minute—an increase in production plus an increase in tap life.

Circle No. 193 on Inquiry Card—Page 17



Quick Acting JOHNSON No. 130A Hi-Speed Furnace

SAVE HOURS CUT HEAT TREATING COSTS

Save time, save gas . . . heat treat carbon and high speed steels, dies and tools with JOHNSON 130A. Powerful burners provide fast, uniform heat. Gets the job done while other furnaces are still warming up. Temperatures easily regulated. Firebox 7" x 13" x 16½" lined with high temperature refractory. Complete with Carbofrax Hearth, G. E. Motor and Johnson Blower.

For temperature range 1300° to 2350° F. . . . $325.00 F.O.B. Factory

Models available in smaller firebox sizes. Write for Free Catalog.

JOHNSON GAS APPLIANCE CO.
603 E Ave. N.W., Cedar Rapids, Iowa

JOHNSON Since 1901 FURNACES FOR INDUSTRY

For More Information Circle No. 688 on Inquiry Card—Page 17



for a complete
GO and NOT GO CHECK
of external threads USE

PRATT & WHITNEY



ROLL
THREAD
SNAP GAGES

- FAST . . . Go and Not Go elements, combined in one gage, check both maximum and minimum limits in a single pass.
- LOW INITIAL COST
- ECONOMICAL TO USE . . . Rotatably mounted gaging rolls distribute wear . . . retain accuracy indefinitely.
- DEPENDABLE
- VERSATILE . . . check left- or right-hand threads with one gage; use at machine or at bench; adjustable for over and undersize threads.
- A COMPLETE CHECK . . . of diameter, lead, taper, out-of-round and thread form . . . plus an opportunity to analyze the error.
- A COMPLETE LINE FOR EVERY GAGING NEED . . . checking: Diameters from No. 0 to 11½" • 3½ to 80 Threads per Inch • Unified and American Standard, Metric, Whitworth, British Association, Acme, Buttress and special thread forms. Standard length rolls available for various lengths of thread engagement.

MAIL THE COUPON BELOW FOR ADDITIONAL INFORMATION

PRATT & WHITNEY
DIVISION NILES-BEMENT-POND COMPANY
19 Charter Oak Blvd., West Hartford 1, Conn.

FIRST CHOICE FOR ACCURACY SINCE 1860 MACHINE TOOLS • CUTTING TOOLS • GAGES

Please send me free Circular No. 585 fully describing P&W Roll Thread Snap Gages.

NAME_____

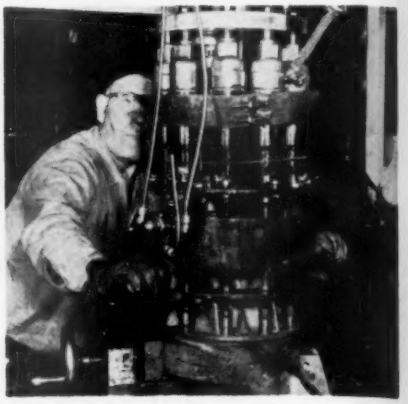
POSITION_____

COMPANY_____

CO. ADDRESS_____

CITY_____ ZONE_____ STATE_____

Multiple Nut Runner Saves $12,000 Annually



A major auto manufacturer had been using a nut runner to run down ten ⅜″ nuts in assembling a transmission carrier to the rear axle housing. Due to the snug fit of a pedestal on the carrier to a matching boss on the housing, a press operation was necessary, before running down the nuts. This was eliminated with an Ingersoll-Rand multiple nut runner. This 175 lb. unit was suspended over the conveyor and accurately ran down the nuts to proper torque. Elimination of the press operation saves about $12,000 per year.

Circle No. 194 on Inquiry Card—Page 17

Tube Bender Saves $14,000/Plane



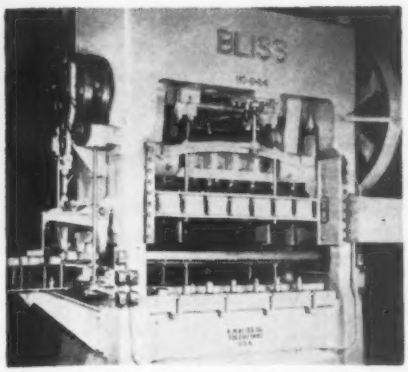
A leading aircraft manufacturer was able to reduce costs by some $14,000 per airplane with a Pines tubing bender. In aircraft, large amounts of thin walled tubing up to 5″ in diameter are used in airframe and engine components. Formerly, to make the many contours required for most applications, half-shell sections were stamped from thin sheet in presses. Then the two sections were welded together to complete the tube. Tooling costs were high because different dies were required for each bend—and it was difficult to make design changes economically and rapidly. With the

For More Information Circle No. 689
←on Inquiry Card—Page 17

tube bender, wrinkle fee bends are made in but one operation at greatly reduced cost.

Circle No. 195 on Inquiry Card—Page 17

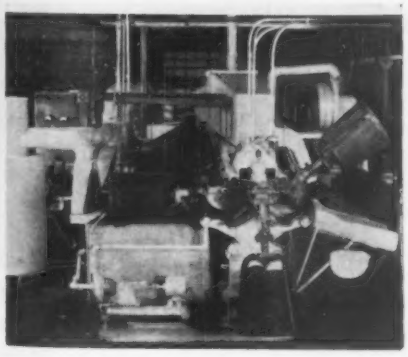
Eight Station Press Cuts Cost of Making Cups



Moe Light Division of Thomas Industries, Inc., Chicago, uses several 150-ton 8-station Bliss presses to produce ordnance parts at minimum cost. The multi-station presses produce parts at a fraction of the labor cost which would be entailed by single purpose equipment. Preformed cups move, face down, through a friction dial feed to six work stations. The main press slide is equipped with eight-slides which carry cam knockouts to strip parts from dies.

Circle No. 196 on Inquiry Card—Page 17

Plating Production Doubled by Use of Automatic Machine

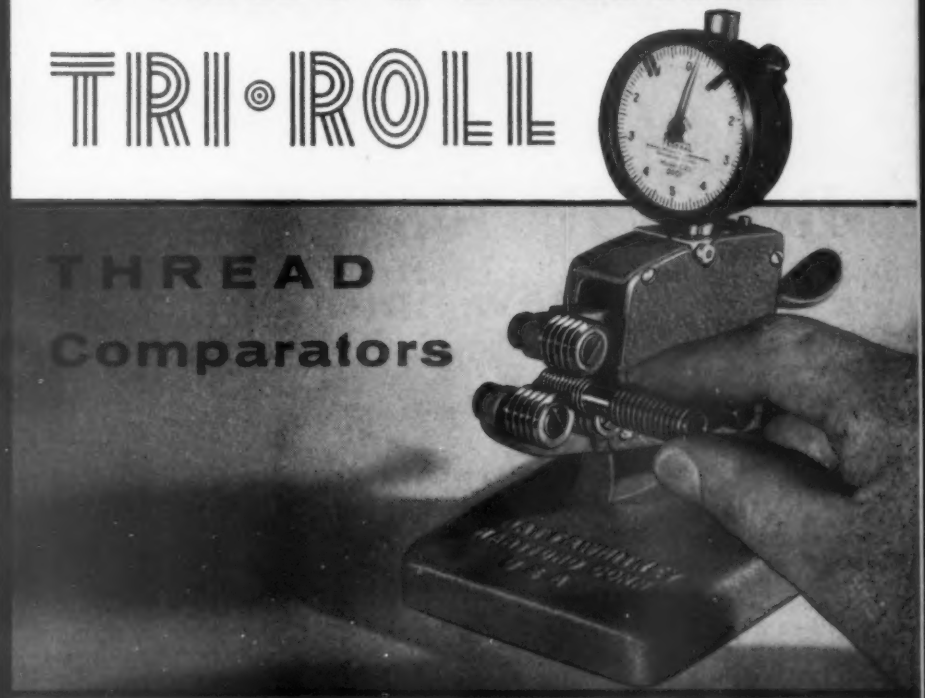


Replacing older methods of plating with a Stevens automatic barrel plater brought these advantages to Midwest Plating and Chemical Corp.: a 100-200% increase in production; lower manpower requirements; fully automatic processing, including drying; savings in use of materials (a salvage tank for plating materials is included in the machine); and better current distribution on the plated work.

Circle No. 197 on Inquiry Card—Page 17

For More Information Circle No. 690 on Inquiry Card—Page 17→

For a
VISUAL INDICATOR
ANALYSIS
of external threads
USE
PRATT & WHITNEY
TRI-ROLL
THREAD
Comparators



- FAST, EASY OPERATION . . . Just operate lever arm, place work on rolls, release lever, read indicator.
- DEPENDABLE ACCURACY . . . Constant gaging pressure minimizes human error.
- A COMPLETE INSPECTION . . . Full-length rolls provide functional check of lead, angle, and pitch in one operation. Rotating work on three rolls permits direct reading of out-of-roundness. Two-rib rolls for critical check of pitch diameter where required.
- VERSATILITY . . . Checks left- or right-hand threads. Can be used at bench or at machine. Readily adapted to a wide variety of special applications by simple fixtures.
- ECONOMY . . . Rolls are rotatably mounted for maximum wear life. Only 7 frame sizes with interchangeable sets of gaging rolls cover the entire diameter range of Unified and American Screw threads from No. 2 to 1½" inclusive.

SEND NOW FOR COMPLETE INFORMATION . . . Mail the coupon below for your free copy of Circular No. 570 . . . or write on your Company letterhead outlining your thread gaging requirements.

PRATT & WHITNEY
DIVISION NILES-BEMENT-POND COMPANY
19 Charter Oak Blvd., West Hartford 1, Conn.

FIRST CHOICE FOR ACCURACY SINCE 1860 MACHINE TOOLS • CUTTING TOOLS • GAGES

Please send my free copy of Circular No. 570.

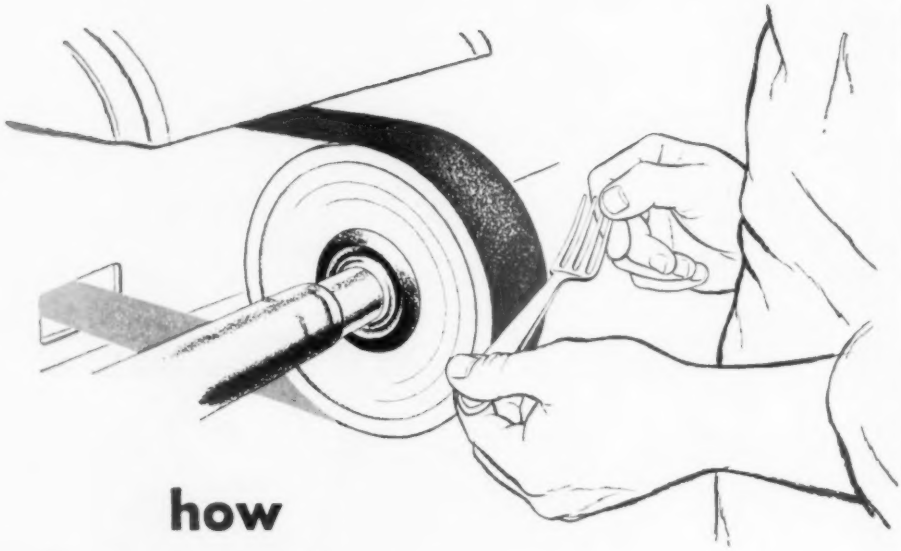
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CITY_____ ZONE_____ STATE_____



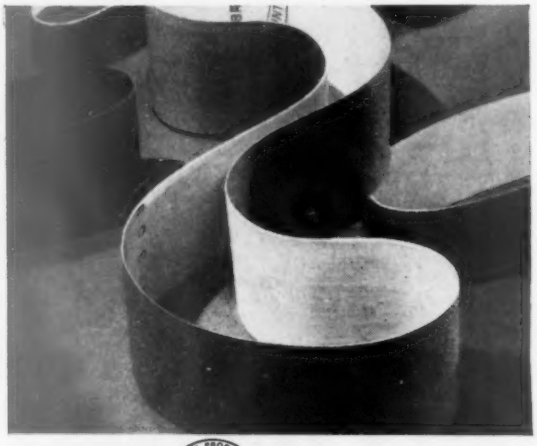
how

Reed & Barton

rolled up new finishing records for spoons and forks!

To roll the burred outer edges of nickel silver spoons and forks, Reed & Barton, nationally-famous manufacturers of tableware, employed the most effective method known to them. Yet this method was troublesome, time-consuming and comparatively costly. Abrasive Products Engineers were invited to offer recommendations. Their solution to the problem produced *a 30% improvement* in overall speed and efficiency of the process by using Jewel Brand Belts. More uniform quality of finishing was achieved. Belt breakage reduced to a minimum.

Here is another typical example of the way Jewel Brand Abrasive Engineers cooperate to produce better, more economical methods of using abrasives. This is an important part of their "stock-in-trade" along with a complete line of top-grade Jewel Brand Abrasive Belts. Maybe this combination can help you find a better, more economical way to use abrasives. Call your nearby Jewel Brand Abrasive Engineer or Industrial Distributor or write . . . Abrasive Products Inc., 513 Pearl Street, South Braintree 85, Massachusetts.



JEWEL BRAND *Abrasive Belts*

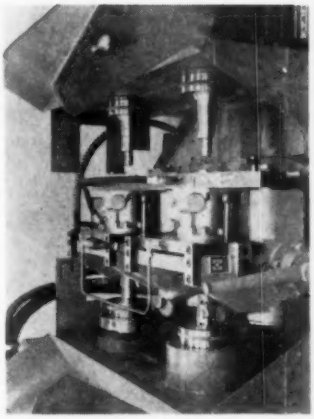
Jewel Brand Belts feature exclusive, VELVET Joints that last longer; eliminate jumping, bumping or scratching.

Abrasive Products, Inc.

SOUTH BRAINTREE 85, MASSACHUSETTS · MAKERS OF JEWEL COATED ABRASIVES

For More Information Circle No. 691 on Inquiry Card—Page 17

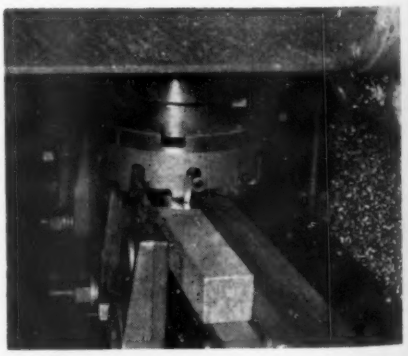
Production Tripled with Multi-Operation Machine



A well known manufacturer of precision aircraft components found that it could triple output (and reduce costs accordingly) of a pump body. It accomplished this with a Heald Model 322 Bore-Matic. The machine finish bores and plunge faces gear pockets, finish bores and chamfers shaft holes, and semi-finishes counterbores in two sizes of aluminum double end pump bodies. Each body has two pairs of opposed pockets with connecting shaft holes. Cycle is automatic from loading to unloading of parts.

Circle No. 198 on Inquiry Card—Page 17

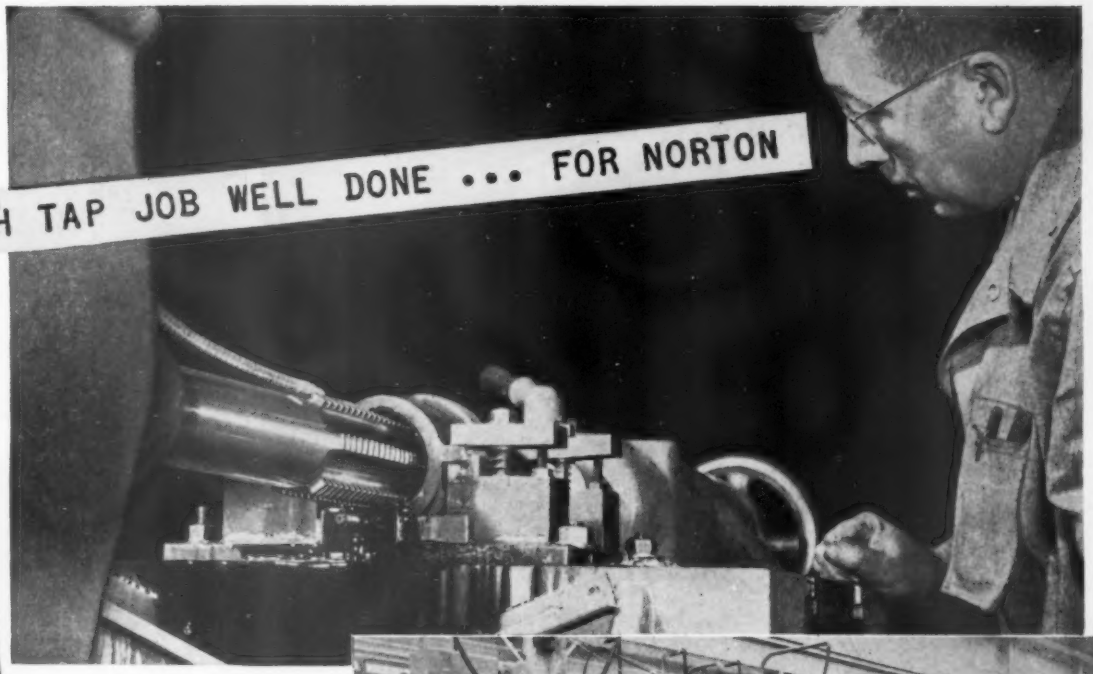
New Carbide Cutter Mills Bar Stock 500% Faster

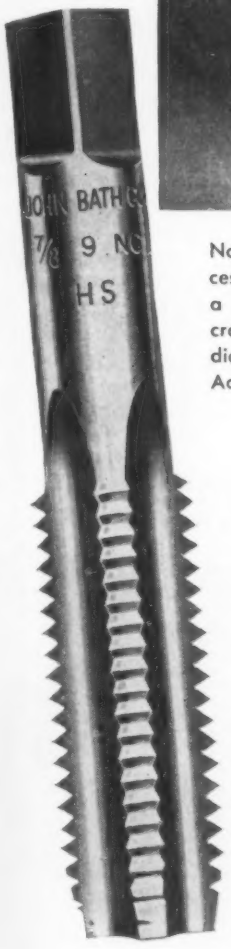


Adoption of the Futurmill carbide cutter for face milling high stress bar steel saved the Glenn L. Martin Co. more than $550 on one job which involved machining of a lot of 238 pieces. Cost saving features of the cutter include the fact that blades, when dull, can be indexed on the machine. They are thereby sharpened and continued operation is permitted. In addition, initial cost is less than a standard carbide tipped cutter, and blades can be returned to the manufacturer for a rebate of two dollars when they're worn out.

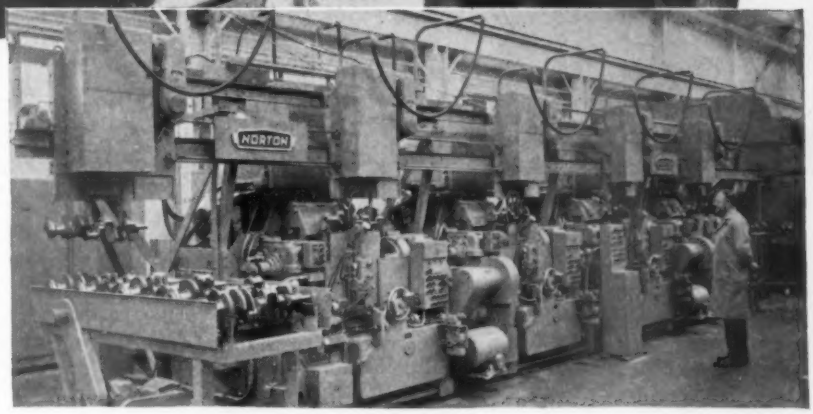
Circle No. 199 on Inquiry Card—Page 17

A BATH TAP JOB WELL DONE ••• FOR NORTON





Norton operator at Worcester, Mass. plant, threads a full nut for automatic crankpin grinder with 3½" diameter, 2½ pitch Bath Acme tap.



Precision

. . . a basic ingredient of Automation

This new Norton Transfer Type Crankpin Grinder is the first fully automatic machine for this difficult operation and was recently installed in the new V8 engine plant of Studebaker Packard Corp. at Utica, Mich.

These automatic operations . . . locating, grinding, gaging and transferring, require one basic work ingredient . . . PRECISION.

Extreme accuracy of components includes threading and gaging the parts that move heavy wheel heads to produce crankpin diameters to close tolerance.

Selection of Bath taps and gages by Norton to do this work, is tangible proof of the Bath Line reputation for dependable accuracy and economical performance.

When you build any type of machinery . . . be sure to remember that accuracy starts with the production of component parts. When it comes to threading and gaging . . . industrial leaders rely on Bath taps and gages for the all-important work ingredient . . . PRECISION.

Insist on BATH TAPS for BETTER THREADS

JOHN BATH & CO., Inc.

30 Grafton St., Worcester, Mass.

PLUG CYLINDRICAL AND THREAD GAGES • RING THREAD GAGES • GROUND THREAD TAPS • INTERNAL MICROMETERS

For More Information Circle No. 692 on Inquiry Card—Page 17



ALWAYS DEPENDABLE

When you buy Udylite barrel plating cylinders you get more than good materials—you get the experienced engineering that has made Udylite barrels the best built, longest lasting, most economical barrels on the market. For Udylite barrels are constructed with the characteristics of the materials well in mind—and engineered accordingly.

Along with fine engineering Udylite is in continuous search for materials giving longer life and greater over-all economies in barrel plating. Udylite manufactures barrels of Rubber, Bakelite, Melamine, Lucite and now in turn has developed Tempron Hard Rubber.

Tempron Hard Rubber is recommended as the best plating barrel cylinder material now available, but its characteristics require special construction. Udylite's new construction (patent pending) features interlocking panels and ribs with the added advantage that panels, ribs, rails and cylinder heads are individually replaceable.

Tempron Hard Rubber has greater abrasion resistance, will handle more cleaning and plating solutions at higher temperatures including hot Stannate Tin, and with Udylite's new construction, will take the hard pounding of heavier loads day after day.

It will pay you to investigate Tempron Hard Rubber cylinders. Fill out the coupon below and mail today.

WORLD'S LARGEST PLATING SUPPLIER

We would like to discuss Tempron Hard Rubber cylinders with your sales representative. Please have him call.

NAME

COMPANY

STREET ZONE

CITY STATE

THE Udylite CORPORATION
DETROIT 11, MICHIGAN

90° Bends Cut Transformer Cooling Tube Costs



The Line Material Co., Zanesville, O., has effected substantial savings with a new method of fabricating cooling tubes for electrical transformers. Using a Pines Engineering Co. bender, they now make sharp, 90° bends to replace former long radius bends. In addition to improving cooling tank construction, it has eliminated poor quality bends and high scrap losses. Also, 50 different tube lengths ranging from 32" to 58" are now formed with a single set of tooling on the Pines Bender.

Circle No. 200 on Inquiry Card—Page 17

Finishing Operations Eliminated on Defective Shafts

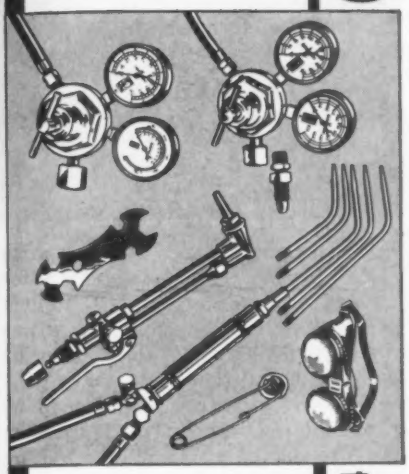


Magnaflux inspection more than paid for itself for one leading aircraft engine manufacturer. A case in point is an aircraft shaft which cost $113. Cost at point of inspection was $105; operations worth $8.00 remained. 4415 shafts were inspected at a cost of $441 and 134 defective shafts were discovered. The defective shafts would not otherwise have been located until after each had had an additional $8 worth of work performed. Savings totaled $631—the cost of the operations that might been needlessly performed less the cost of Magnaflux inspection.

Circle No. 201 on Inquiry Card—Page 17

For More Information Circle No. 693 ←on Inquiry Card—Page 17

to WELD or CUT



there is a Dockson OUTFIT "complete" at one low price

FOR EXAMPLE—The Dockson No. 145 Outfit illustrated above is for light and medium welding and cutting jobs up to and including 5" steel. At one low price you get—

1—No. 4-E-C Hi-Speed Welding Torch ● 1—Ea. Nos. 2, 4, 6, 8 and 10 "E" Style Elbow Tips ● 1—C-4 Hi-Speed Cutting Attachment ● 1—C-2 Cutting Tip ● 1—No. 134-BE Oxygen Regulator, 200 lb. and 3000 lb. gauges ● 1—No. 134-AD Acetylene Regulator, 50 lb. and 500 lb. gauges ● 1—Commercial to P.O.L. Adaptor ● 1—12½ ft. length ¼" Siamese Hose ● 4—Hose Connections ● 1—Outfit Wrench ● 1—Round File ● 1—Pr. Series 66-19-6 Welding Goggles. Gas Lighter

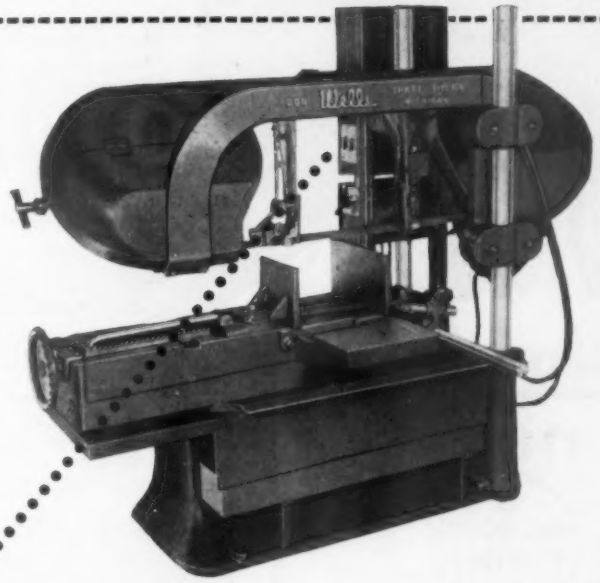
YOUR DOCKSON DISTRIBUTOR—is a carefully selected specialist who carries a complete line of Dockson Products in stock to give you fast service and personal attention. We back our distributors 100%.

WRITE FOR YOUR DISTRIBUTOR'S NAME AND OUR COMPLETE CATALOG OF WELDING AND CUTTING EQUIPMENT. BUILT FOR BETTER SERVICE.

Dockson CORPORATION
3639 WABASH • DETROIT 8, MICH.

For More Information Circle No. 694 on Inquiry Card—Page 17

NEW EASE OF CONTROL WITH THE WELLS MODEL 1200 METAL CUTTING BAND SAW



CONVENIENT FINGER-TIP CONTROLS now operate at 110 volts

The Wells Model 1200 is a rugged, new horizontal band saw for heavy-duty production cutting in any shop. The Model 1200 incorporates all the proven advantages of the Wells No. 12, plus such outstanding advancements as "Feather Touch" Finger-Tip Control and greater safety with *110 Volts at the controls.* Metal cut-off actually becomes a preferred job with this machine because operation is so easy. In addition to ease of operation, the Model 1200 has the versatility to handle big jobs or little jobs with efficient, economical, fast and accurate action.

Flip a switch and the Model 1200 becomes a completely automatic machine with continuous operation for duplicate cutting when used with a Wells-O-Bar Feed Master stock projection unit.

Check the following select features and then request Job Engineering assistance on your specific cutting requirements.

Select Features

APPROVED ELECTRICAL SYSTEM
110 VOLTS AT CONTROLS
OVERLOAD AND LOW VOLTAGE SAFETY
NEW HYDRAULIC UNIT
AUTOMATIC CUTTING CYCLE
NEW BLADE PRESSURE CONTROLS
SPECIAL CHIP FLUSHING UNIT
NEW HEAVY-DUTY BLADE GUIDES
FOOL-PROOF BLADE TENSIONING
NEW POWERFUL COOLANT UNIT
RIGID POSITIVE STOCK STOP

DESIGN DETAILS

- Large Capacity—Rounds, 12¾"; Rectangular, 12" x 16", 11" x 18".
- For Die Blocks: Clearance bed to blade, 18". Permits 12¾" depth cut of large blocks.
- Selective Speed Range: 60, 115, 200, 300 ft. per minute.
- Ample Motor Power: 1 H.P. Blade Drive; ½ H.P. Hydraulic System.
- Parallel to bed cutting action.
- Adjustable stops for depth cutting.
- Automatic frame return and shut-off.
- Shipping Weight: Approximately 1950 lbs.

Wells SAWS

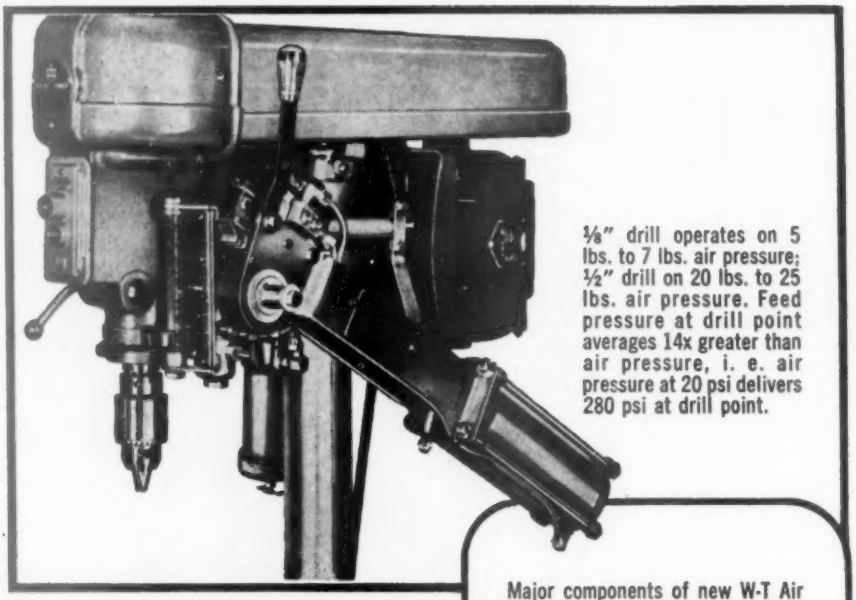
Wells

The Pioneers of Horizontal

METAL CUTTING BAND SAWS

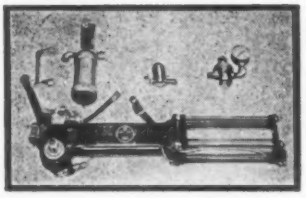
WELLS MANUFACTURING CORPORATION
2400 JACKSON AVE. THREE RIVERS, MICHIGAN

For More Information Circle No. 695 on Inquiry Card—Page 17



⅛" drill operates on 5 lbs. to 7 lbs. air pressure; ½" drill on 20 lbs. to 25 lbs. air pressure. Feed pressure at drill point averages 14x greater than air pressure, i. e. air pressure at 20 psi delivers 280 psi at drill point.

Major components of new W-T Air Feed. No "electrics". No "hydraulics". Installs in about 10 minutes, no machining necessary. Just connect to nearest air supply.



PAT. PENDING

new

walker-Turner

AIR FEED DRILL PRESS

Ingenious Air Feed gives you AUTOMATIC CYCLING FOR PRODUCTION DRILLING — AT LOWEST POSSIBLE COST!

What does it cost? The W-T Air Feed Drill Press is available, ready for operation, at a surprisingly modest cost. For example: a W-T 15"-4" Travel Drill Press *complete with motor and Air Feed* is priced from $344.00. Or, if you prefer, you can get the Air Feed unit at only $185.50 to fit your W-T Drill Press (or any W-T type drill press up to 4" spindle travel). Compare these prices with any other Air Feed equipment!

Profitable? The W-T Air Feed is 100% pneumatic . . . requires virtually no maintenance . . . gives you fully dependable, low-cost, automatic performance day-in-and-day-out for a wide range of production operations, including drilling, reaming, counterboring, tapping, burring, spotfacing, etc. Fits as integral part of a drill press head, does not interfere with any function, swing or position of the machine.

Accurate? Complete, sensitive air feed control — including checking and slowing-down at several points as well as at the break-through point — is accomplished by ingenious, fool-proof micro-valve action. Just by positioning a valve stop, the spindle will feed and retard as desired, continuously and automatically — and the accuracy of the stroke will hold indefinitely within 0.003".

Available? Your local Distributor has W-T Drill Presses equipped with W-T Air Feed on demonstration right now. See them in action. You'll find your Walker-Turner Distributor listed under "Tools" in the yellow pages of your local telephone directory. Call him, today.

WALKER-TURNER

• DIVISION •

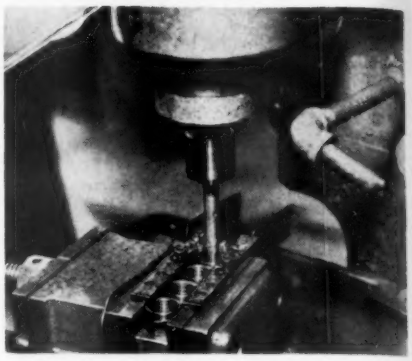
KEARNEY AND TRECKER CORPORATION

PLAINFIELD, N. J.

DRILL PRESSES—Hand and Power Feed • AIR FEED DRILL PRESS ATTACHMENT • RADIAL DRILLS • Wood and Metal Cutting BAND SAWS • TILTING ARBOR SAWS RADIAL SAWS • JIG SAWS • LATHES • SPINDLE SHAPERS • JOINTERS BELT AND DISC SURFACERS • FLEXIBLE SHAFT MACHINES

For More Information Circle No. 696 on Inquiry Card—Page 17

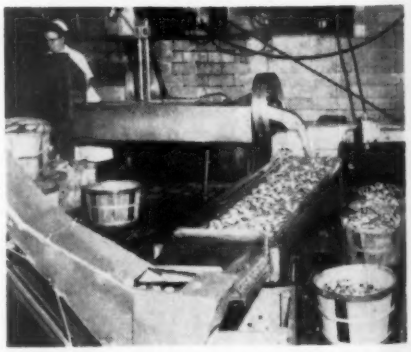
Wire Brushes Help Cut Cost of Coupling Nuts



One manufacturer uses a high speed tapping attachment for threading stainless steel coupling nuts. Cost of the operation was high because chips which settled down in the threads and burrs generated in the operation had to be removed manually. This expensive hand operation was eliminated by mounting Osborn wire brushes on the tapping machine. The brush, with .005 stainless steel wire fill, is driven down into the nut at 100 fpm, reversed and brought out a 200 fpm. Chips and burrs are completely removed with this procedure.

Circle No. 202 on Inquiry Card—Page 17

Food Slice Separator Speeds Slicing-Packing Operations



Removing under-size and end slices was presenting a production bottleneck for a leading sliced pickle packer. While slicers could handle 300-bushels per hour, human hands at the packing table couldn't remove the unwanted slices at anywhere near that rate. As a result, Stephens-Adamson Mfg. Co. produced its Food Slice Separating Machine which proved 97% effective in coping with the problem. Slices fall onto a stainless steel screen deck of a vibrating conveyor and the unwanted food is removed in only a 10 ft. run.

Circle No. 203 on Inquiry Card—Page 17

HY-PRO SPECIALIZES IN TAP PROBLEMS



TAP PROBLEM? You'll be safer to call on Hy-Pro. They specialize in solving all tap needs.



HY-PRO SPECIALIZED ENGINEERS are always ready to work closely with you in analyzing and recommending money saving improvements in your operation.

. . . to lower your unit costs

Hy-Pro's business is solving tap problems . . . problems which cost you time and dollars. Because their whole operation is centered on tap business, Hy-Pro can continually concentrate their research and creative staff in analyzing and improving every phase of tap use.

The result has been Hy-Pro's established reputation in production circles as "*The Tap Specialists*", backed by a complete line of high quality taps.

You can contact them directly or through your nearest distributor. Their engineer specialists can help lower *your* unit costs.



REG. U.S. PAT. OFF.

HY-PRO



HY-PRO TOOL CO., NEW BEDFORD, MASS., U. S. A.

DISTRIBUTORS IN ALL LEADING CITIES

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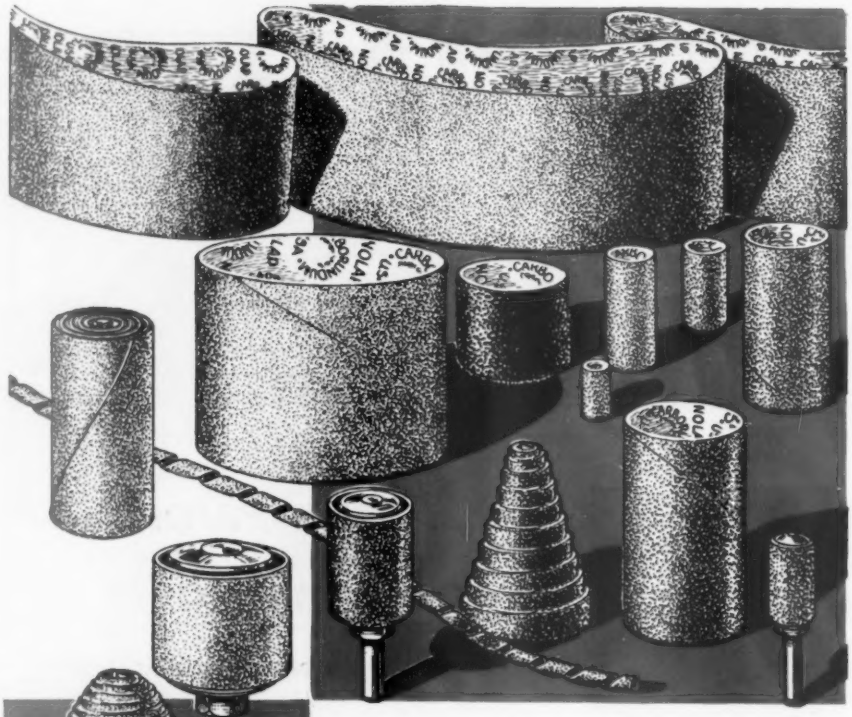
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1132 LAWLER ST. (WORTH) CHICAGO, ILL. GARDEN 4-0217

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For More Information Circle No. 697 on Inquiry Card—Page 17



ABRASIVES

Cleveland No-LAP Abrasive Sleeves and Expanding Drums, Belts, Smoke Hole Cleaners and Abrasive Cartridge Rolls and Mandrels

MEET EVERY NEED

. . . in sanding, polishing and cleaning up.

CLEVELAND ABRASIVES

give long wear, and their constant cutting surface means improved performance!

Whether the job be great or small, Cleveland Abrasives save time, money and effort.

Send for our **NEW FOLDER** giving complete data. SAMPLES gladly furnished of the grit and size you desire.

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THE **CLEVELAND CONTAINER** COMPANY

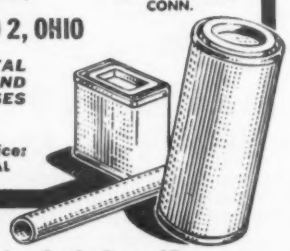
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PLANTS AND SALES OFFICES: CLEVELAND, DETROIT, CHICAGO, MEMPHIS, LOS ANGELES, PLYMOUTH, WIS., JAMESBURG, N. J., OGDENSBURG, N.Y. • ABRASIVE DIVISION CLEVELAND

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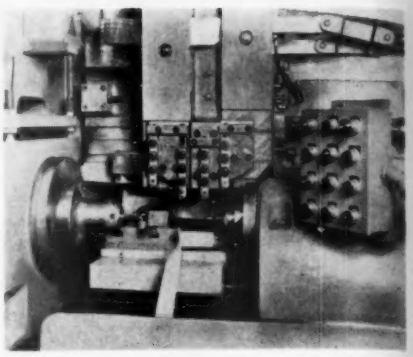
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For More Information Circle No. 698 on Inquiry Card—Page 17

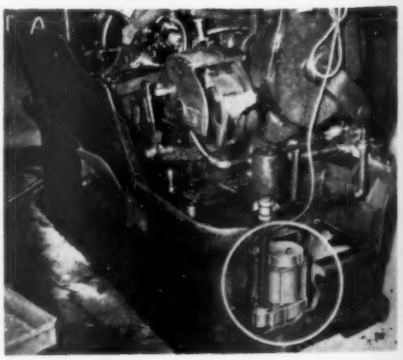
High Speed Lathes Reduce Part Manufacturing Cost



Production of automotive stem pinions with 2 machines instead of 3 has resulted in substantial savings for a leading manufacturer. Using 2 Hydra-Feed lathes, it has found that one operator can easily handle the work—a big saving in man-hours. Also, the machines permit combining of operations, considerably reducing parts handling. Thus, with fewer machines, less handling and easy push-button loading and unloading, the firm is getting more production per dollar.

Circle No. 204 on Inquiry Card—Page 17

Machine Tool Shutdowns Reduced by New Coolant Method



A new system of applying coolant oils has been installed by Ohio Screw Products, which enables machine work to be flooded with far greater volumes of coolant than heretofore possible. Basically the system consists of a Kenco submersible pump in an oil sump at the base of the machine tool. The pump lifts the oil through a pipe and floods the work with up to 3300 gallons of coolant oil per hour. This results in longer tool life, better tool finish, longer machine tool life, extended bearing life and greater chip flushing capacity.

Circle No. 205 on Inquiry Card—Page 17



Controlled compressed air has given Industry muscle-saving power to produce more . . . economically . . . without fatigue . . . more safely.

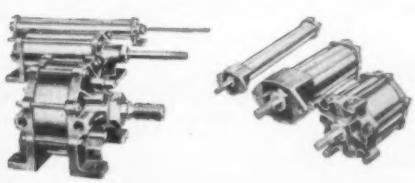
Compressed air has become a must in every plant. If you are not now using it, investigate it. And—wherever you actually use compressed air—you'll make its use more effective if you use the best valves possible—Schrader Valves. They are designed and built by a company whose success dates back to 1844—more than a century of experience in air control.

In the complete line of Schrader Valves you'll find two-, three- and four-way models . . . for hand, foot, cam, pilot or solenoid operation . . . for practically any application.

Find out how Schrader Valves can put compressed air to work to save you money. For specification data, write—or, if you prefer, fill out the coupon below.

Schrader
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LEADERS IN AIR CONTROL SINCE 1844



The complete Schrader line of pneumatic accessories includes everything you need

A. SCHRADER'S SON
Division of Scovill Manufacturing Company, Incorporated
473 Vanderbilt Avenue, Brooklyn 38, N. Y., Dept. 1-7

I am interested in more information on_____

Name_____ Title_____

Company_____

Address_____

For More Information Circle No. 699 on Inquiry Card—Page 17

for fastening operations
using SLOTTED screws
APEX has the tools for every job!



Whether you use air, electric or hand power to drive slotted screws, Apex has tools designed specifically for your kind of work! Apex bits for slotted screws are made of special shock-resisting steel, heat-treated and tempered to provide the greatest efficiency on specific applications. Blade tips are precision-machined to insure a close fit on the screws for which they are specified.

Select the Apex tools you need from the most complete line of standard and magnetic bit holders, service drive bit holders and combination hand drivers —for use with Apex insert bits. Choose from a full range of standard power bits, and power and insert bits with finder sleeves—for use with all popular makes of air, electric and spiral drivers.

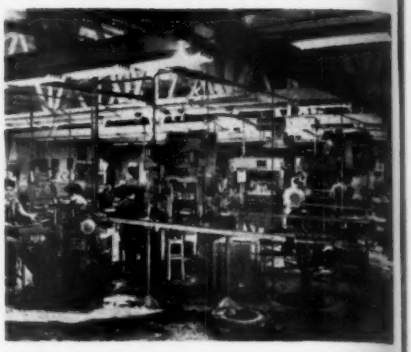
To do a better job of driving slotted screws (or Phillips, Frearson, Clutch Head and Socket Head screws, too!), get the facts about Apex screwdriving tools. Write, on your company letterhead please, for Catalog 21—the authority on screwdriving.

APEX screwdriving tools

THE APEX MACHINE & TOOL CO.
1034 Patterson Blvd. • Dayton 2, Ohio

For More Information Circle No. 700 on Inquiry Card—Page 17

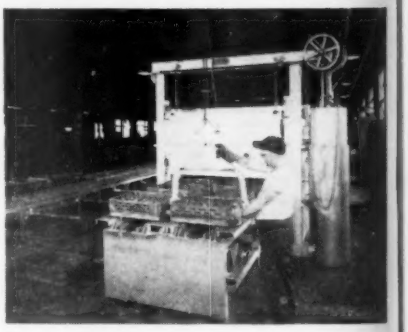
High Speed Press Makes 9000 Parts per Hour



Paul R. Repath Co. of Los Angeles is in the competitive business of making motor and transformer laminations. To get maximum output at minimum cost (and maintain top quality standards), it uses three Bliss high production presses to produce laminations at a 9000 part per hour clip. With any method but high production automatic presses, output would be much lower and costs higher.

Circle No. 206 on Inquiry Card—Page 17

New Gas-Fired Heat Treating Furnace Uses 50% Less Space



To produce more uniform grey iron castings, the Fremont Foundry Co., Fremont, O., put a Surface Combustion, direct gas-fired, furnace into operation. In addition to more uniform results than previously obtained from two car-bottom type furnaces, Fremont has found that only half the floor space is required. In addition, there is far less handling involved in producing better castings.

Circle No. 207 on Inquiry Card—Page 17

Hand Operation Eliminated With Air Cylinder

A manufacturer of automatic pencils found that it could speed up assembly operations and reduce

(*Please turn to page* 280)



Smooth, even finishes are easier with Heller Spiral-Cut Half Round Files. Ordinary half round files require a skillful twisting. Heller engineering has removed this human element from good file performance. The necessary rolling action is designed right into the Heller Spiral-Cut Half Round File. This new cutting principal is typical of Heller's continuous search for better files. By constantly testing, inspecting, improving . . . Heller guarantees file users "the best."

HELLER BROTHERS TRADE MARK SINCE 1836

A NEW JERSEY CORP.

VIXEN *American-Swiss* NUCUT
FAMOUS BRANDS MADE ONLY BY

HELLER BROTHERS COMPANY

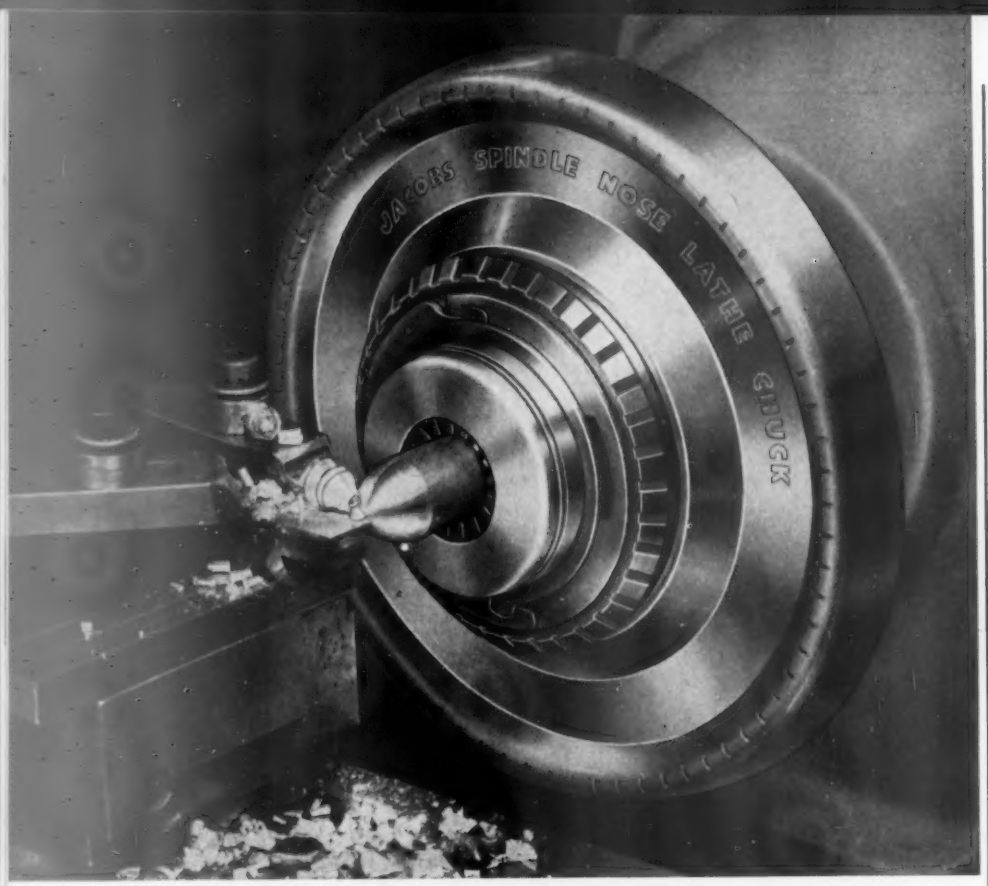
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For More Information Circle No. 701 on Inquiry Card—Page 17



Twice the performance at half the cost!

The Jacobs Model 91 Spindle Nose Lathe Chuck delivers from two to four times more torque than any split steel collet chuck and costs less than half as much on a complete-with-collets basis.

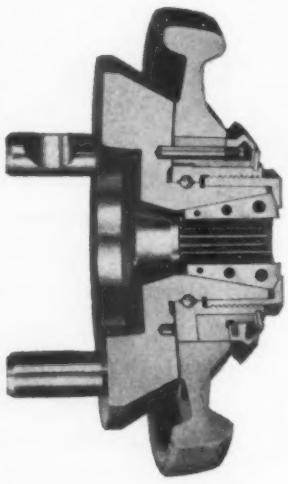
Here is the performance of the Jacobs Model 91:

Unequalled Gripping Power. Model 91 has 2 to 4 times the grip of present split steel collet chucks.

Capacity. Model 91 chucks any bar between 1/16″ and 1-3/8″. 11 Rubber-Flex collets cover the gripping range of as many as 88 steel collets formerly needed.

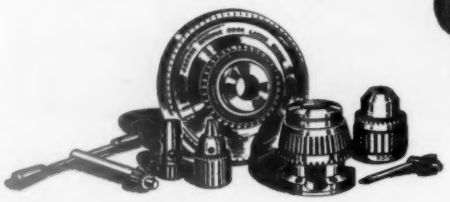
Unequalled Accuracy. Model 91 is the most accurate collet chuck in the world today.

Durability. Model 91 has a solid aluminum hand wheel. The forged body and all other chuck parts are hardened and ground alloy steel.



The Spindle Nose Lathe Chuck and the complete line of Jacobs Chucks are stocked and sold by industrial distributors everywhere. See yours, or write Jacobs Manufacturing Co., 1906 Jacobs Road, West Hartford 10, Conn. Ask for Bulletin 54A-LC.

JACOBS AND YOUR LOCAL DISTRIBUTOR
are ready to deliver the chucks you need and the service you deserve.
first in chucks . . . first in service



Jacobs
CHUCKS
If it's a Jacobs-it holds

(*Continued from page 278*)

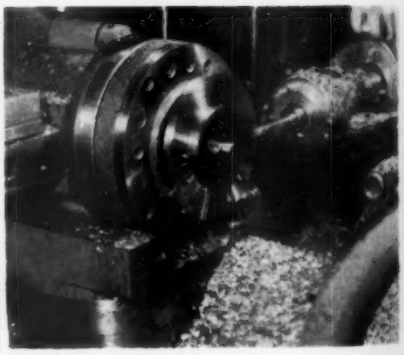
costs with proper application of Mead air cylinders. One example is the assembly of prongs which hold or release the lead in operating the pencil. 8 prongs are inserted through a slot in the collet tube and prong retainer. This is a very



delicate operation because of the small size of the prongs. The use of an air cylinder has not only eliminated a hand operation but also done away with the need for applying wax to the bundle of prongs. Wax was formerly needed to make the prongs stick together and it had to be washed out later. Over-all output on this operation was increased from 400 assemblies per day to 950 per day through improved methods.

Circle No. 208 on Inquiry Card—Page 17

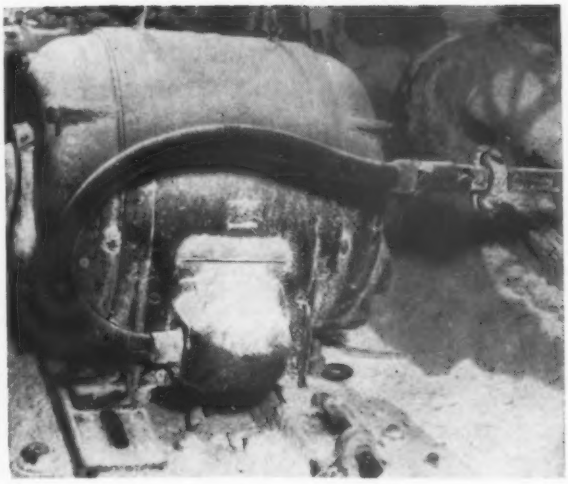
Automatic Drill Units Double Output



A prominent manufacturer has increased production of roller pockets for the bronze retainers of precision radial and thrust roller bearings by 100%. It machines them in one operation on two automatic indexing air hydraulic drill units, designed by Rollway Bearing Co., Syracuse, N. Y. The new machines drill and ream both radial and thrust retainers, which vary in size from 2 to 14-in. O.D. and from ¼ to 1¼-in. drill diameter. Index cycle time of units is 2 sec.

Circle No. 209 on Inquiry Card—Page 17

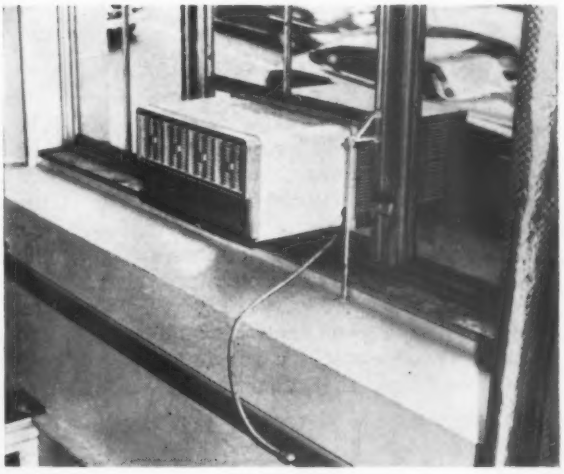
For More Information Circle No. 702 ←on Inquiry Card—Page 17



Circuit Failures Cut; $3 to $5 per Lead Saved

Westvaco Mineral Products Division of Food Machinery & Chemical Corporation must protect leads to its motors from a chemical "snow" of corrosive materials. They used to wrap ordinary flexible steel conduit with rubber tape, then give it two coats of a hard protective varnish. This cost $3 to $5 per lead. Now they use American Brass Sealite conduit and this operation is no longer necessary. Complete protection of the leads is now assured.

CIRCLE NO. 210 ON INQUIRY CARD—PAGE 17



Electrical Duct Saves 36 Hours In Air Conditioner Installation

Thirty-six man hours were saved on the installation of 10 air conditioners for a Pittsburgh bank through the use of National Electric Surfaceduct. Since power enters through the basement beneath a 16″ concrete floor, a two piece surface mounted raceway was used in preference to drilling 10 separate holes. Only one hole had to be drilled; this plus installing the conduit and fishing the wires took four hours in contrast to the 40 that woud have been needed.

CIRCLE NO. 211 ON INQUIRY CARD—PAGE 17



Lighting Costs Reduced $6050 By Group Replacement Plan

The American Type Founders plant in Elizabeth, N. J. is equipped with about 11,000 fluorescent lamps. Under the Sylvania group replacement plan adopted several years ago the entire lamp installation is replaced every two years. Savings now amount to $6050 every replacement period—in labor costs alone. The figure does not take into account the savings realized through longer fixture and starter life, fewer breakdowns and repairs and other benefits.

CIRCLE NO. 212 ON INQUIRY CARD—PAGE 17



Quartz Infrared Tubes Up Portable Oven's Capacity

Wean Mfg. Co., Warren, O., used to expand bearing assemblies in a hot oil bath or in a portable oven unit using regular infrared bulbs. The oil bath took too long to set up and run. The portable oven wasn't roomy enough to take larger parts. To retain the advantages of portability, the oven unit was equipped with 12 1000-watt quartz infrared tubes developed by General Electric. Because of the small size and high energy of the lamps, the oven units can handle parts up to double the size they could handle before.

CIRCLE NO. 213 ON INQUIRY CARD—PAGE 17



Standardizing On Electric Motors Reduces Cost

So that its new 24" single drum endless bed sander would have maximum competitive appeal, Woodworkers Tool Works Inc. of Chicago standardized on Acec Electric motors. This kept cost of a major component to a minimum. The sanding machine is driven by a 3 hp motor which is either 220 volt 3 phase or 110/120 volt single phase. Pass-along savings on the motor helped this manufacturer keep costs at a minimum and price its product at a level that assured maximum demand.

CIRCLE NO. 214 ON INQUIRY CARD—PAGE 17



Steel Electrical Conduit Slashes Downtime

Downtime costs money—it cost one manufacturer hundreds of dollars per hour. Its processes required handling of large amounts of corrosive materials. The material would slowly eat through inadequately protected cable and—if it weren't caught in the frequent maintenance inspections that were necessary—eventually failure and downtime would result. This problem was solved and maintenance costs were reduced by using Superduct, a new rigid steel electrical conduit.

CIRCLE NO. 215 ON INQUIRY CARD—PAGE 17

SPEED Drive Experience!

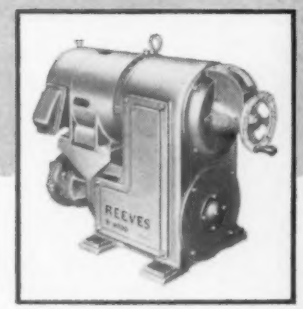
Announcing the combining of the engineering facilities and application experience of two great names in the power transmission field...

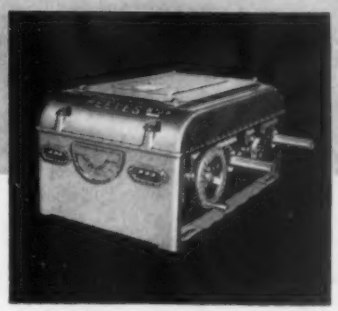
REEVES

Vari Speed Drives

VARI-SPEED MOTODRIVE • VARI-SPEED MOTOR PULLEY • FLEXI-SPEED DRIVE • VARIABLE SPEED TRANSMISSION







REEVES PULLEY COMPANY

COLUMBUS, INDIANA

DIVISION OF

RELIANCE ELECTRIC AND ENGINEERING CO.

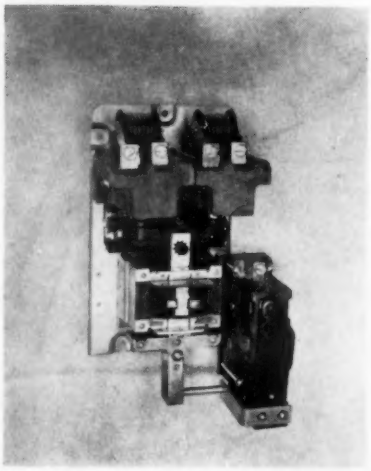
Electrical Equipment . . .



Automatically Controlled Welders Increase Output Three-fold

Federal Electric Products Co. of Newark, N. J. used to use 10 individually operated welders plus two stand-by machines and operators in the manufacture of circuit breakers. Now resistance welding is done with two Taylor-Winfield machines adapted to automatic operations and requiring but one operator each for supervision. As a result production has been tripled and costs slashed drastically.

CIRCLE NO. 216 ON INQUIRY CARD—PAGE 17



One Contactor Does Job of Two; Cost Cut, Too

Several well known manufacturers of variable voltage controls used to use insulating base type contactors on D-C power circuits. When normally closed power contacts were required for dynamic braking and field discharge purposes, a separate contactor was used besides the line closing contactor. By switching to Ward Leonard Electric's metal base D-C solenoid contactors, it was possible to add a small dynamic contact assembly to the line closing contactor saving panel space and reducing assembly cost.

CIRCLE NO. 217 ON INQUIRY CARD—PAGE 17

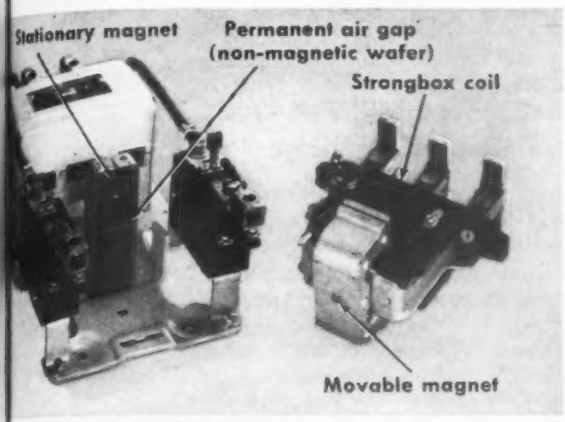


Heavy Expense From Frozen Foundry Sand Eliminated by Heating Cable

At Lackawanna Foundry Company, foundry molding sand that froze and caked during off-hours in winter, used to be reconditioned at the cost of considerable time and labor. Now, Thermwire electric heating cable, made by Edwin L. Wiegand Co., is simply laid over the sand pile at the end of the work period. Thus, the sand is kept just above the freezing point. When work resumes, the cable is removed and the sand is found in workable condition. Initial and operating costs are low, the extra expense is eliminated.

CIRCLE NO. 218 ON INQUIRY CARD—PAGE 17

FOR 25- TO 100-HP MOTORS



PERMANENT AIR GAP, away from striking surfaces, can't wear down and cause starter to "stick-in." Magnet design prevents contact chatter.



FRONT WIRED AND MOUNTED, new starter has solderless, pressure-type terminals for wires from AWG No. 6 to 250,000 cm. 3-point front mounting is easy.

New magnetic starters for squirrel-cage motors

General Electric now adds a new, compact, NEMA Size 4 starter to its complete line of magnetic starters. The new starter offers many customer-proved features of size 0 to 3 G-E magnetic starters, such as the strongbox coil and the permanent air gap.

INSTALLED FROM THE FRONT, the new starter has 3-point mounting, and is completely accessible from the front when mounted. Right up in front are the solderless, pressure-type terminals for easy wiring. Also, 3 electrical interlocks, in any combination, can be installed from the front without removing the arc chute or movable-contact assembly. A vertical or horizontal mechanical interlock is also available for reversing and multispeed controllers.

MAINTENANCE IS EASY, and a screwdriver is the only tool required. Contacts are readily changed, and both coil and contacts are removable from the front without disturbing power wiring.

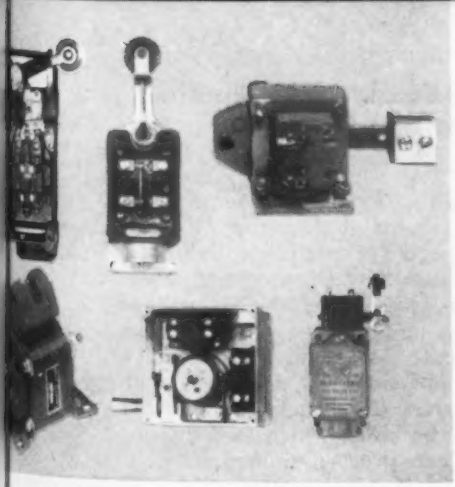
FOR MORE INFORMATION, contact your nearest G-E Apparatus Sales Office or Distributor, mail in the coupon below. Ask for Bulletin GEA-6322.

*REG. TRADEMARK GENERAL ELECTRIC CO.

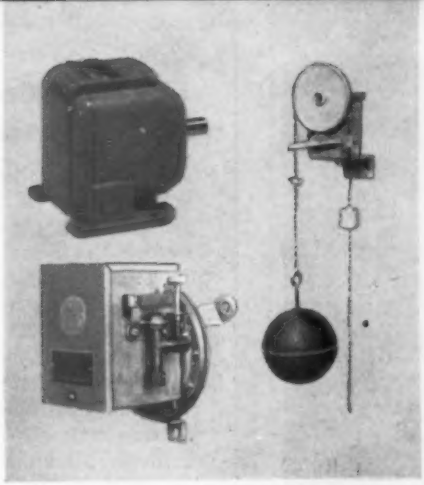
Progress Is Our Most Important Product

GENERAL ELECTRIC

OF G-E CONTROL DEVICES



LIMIT SWITCHES AND SOLENOIDS include lever and cam type limit switches, and the new strongbox solenoid.



G.E.'s LINE OF SWITCHES include pressure, vacuum, float, plugging and anti-plugging, pilot and reversing switches.



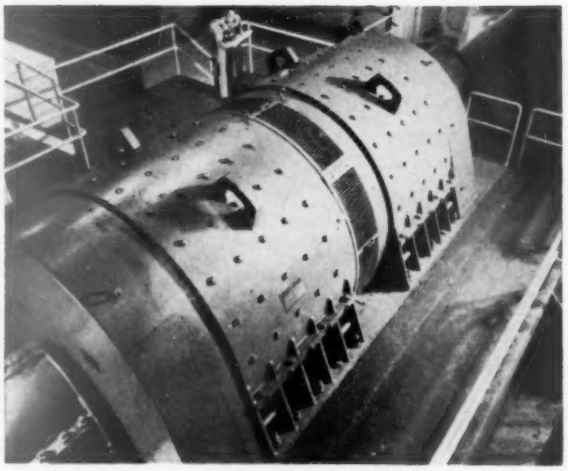
FREE NEW CATALOG of G-E General Purpose Controls.

Advertising and Sales Promotion Sect. A734-2
General Purpose Control Department
General Electric Company
Bloomington, Illinois

Please send a free copy of:

- ☐ GEC-1260A New Control Catalog
- ☐ GEA-6322 New Size 4 Starter
- ☐ For reference ☐ For immediate project

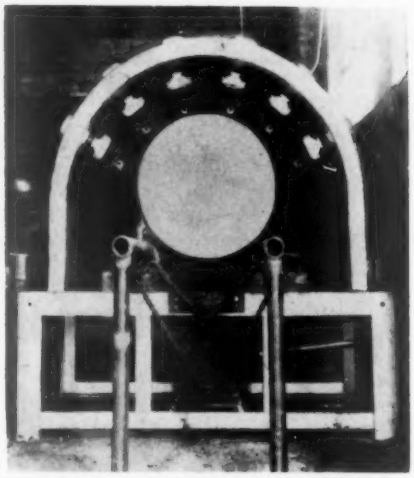
Name.....
Title.....
Company.....
Address.....
City.....State.....



Electrified Mill Produces Record Tonnage

Jones and Laughlin Steel Corporation converted its 44-inch blooming mill at Aliquippa, Pa. from steam to electric drive nearly two years ago. Since then, the mill has set new ingot records. The most recent record is 576 ingots (2534 tons). The mill is now driven by four G. E. 3000 hp motors powered by four 3000 hp generators. The steam engine the motors replaced was retired after 41 years of service.

CIRCLE NO. 219 ON INQUIRY CARD—PAGE 17



Electric Pre-Heating Cuts Drying Time 93%

Reconditioned steel barrels are pre-heated before painting at the Kansas City plant of the Barrel Remodeling Co. In effect, it lets the heated mass dry the paint "from the inside out." Six Chromalox radiant units are arranged to form a compact open end radiant tunnel. The reclaimed barrels are placed inside on revolving rollers for 30 seconds so that heat is applied uniformly just before spray painting. By this method, painted barrels dry in 15 minutes compared with three to four hours by the air drying method.

CIRCLE NO. 220 ON INQUIRY CARD—PAGE 17



Laminations Bonded in 1 Minute Instead of 24 Hours

When cold water glue was used by Laminated Panels, Inc., of Seattle, Wash. to bond plywood panels with plastic sheets it required 24 hours before the bonding agent was sufficiently set to permit machining into finished products. Floor space was used up while material was stacked awaiting glue to cure and spoilage was high from damage in stacking. It was decided to install a 20-foot continuous process oven, equipped with Corona infrared heaters. This enables a thermosetting adhesive to be used which sets in one minute. Machining can proceed immediately.

CIRCLE NO. 221 ON INQUIRY CARD—PAGE 17



JUNK YOUR LAMPS AT 80% OF LIFE AND Save $120 per 1000

Madness? No, it's called Group Replacement, a study Westinghouse has pioneered since 1929. According to this study, replacing your fluorescent lamps one by one as they burn out costs you about 50¢ per lamp in labor alone.

If you replace all your lamps at 80% of lamp life, you can, under average conditions, save $120.00 per thousand lamps changed. Multiply that saving by the thousands of lamps you have in your plants — and call your Westinghouse representative today.

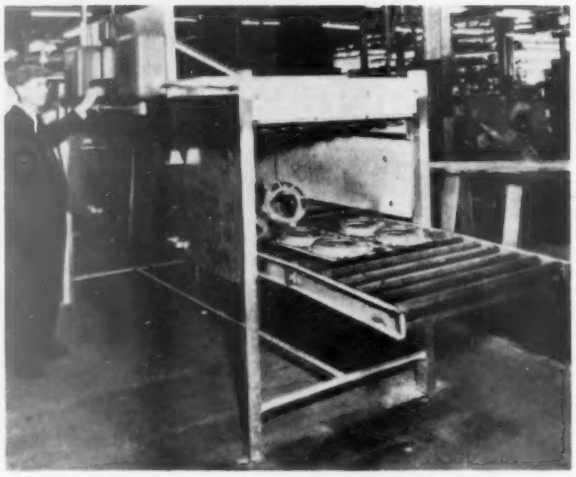
While at the National Association of Purchasing Agents Convention in New York (May 27 to June 1), you can get an on-the-spot lighting cost reduction estimate from the Westinghouse representative in booth 240. He'll be glad to show you how the Westinghouse Group Replacement Plan can save money in your plant.

YOU CAN BE SURE...IF IT'S Westinghouse

←For More Information Circle No. 712 on Inquiry Card—Page 17

For More Information Circle No. 713 on Inquiry Card—Page 17

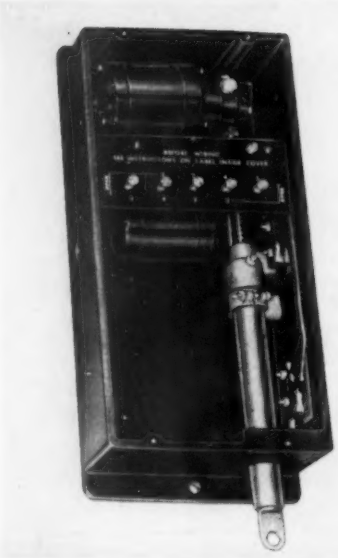
Electrical Equipment . . .



Paint Baked on Metals in 75% Less Time

At the plant of a well-known mixing machine manufacturer, it required 6 hours to bake an assortment of metal parts by the batch method in a steam heated oven. It was decided to substitute a far-infrared electric tunnel, made by Edwin L. Weigand Co. The tunnel contained six electric radiant panels with an installed capacity of 64.8 kw. With this system all parts are now baked in a minimum of 1½ hours, saving 75% of the previous time. In addition, all paint colors are handled at about the same rate.

CIRCLE NO. 222 ON INQUIRY CARD—PAGE 17



Enclosed Motors Drastically Reduce Failures

Coal dust, moisture and gases found in boiler rooms resulted in about a 90% failure record for motors used in a damper control similar to one now made by Cleveland Fuel Equipment Co. At that time, brush type motors were used. Now a Bodine Type NC1-12R totally-enclosed, ball bearing type, capacitor motor is used. As a result, Cleveland reports service-free operation.

CIRCLE NO. 223 ON INQUIRY CARD—PAGE 17



Infrared Heaters Cut Baking Time From 2 Hours to 15 Minutes

Cooley Electric Manufacturing Corp. switched from convection heating to Chromalox infrared electric radiant heaters for baking electric furnace heating elements. The infrared units, made by Edwin L. Wiegand Co., reduced baking time from 2 hours to 15 minutes. The new method also brought about an increase in the strength and thermal conductivity of the elements. Overall power consumption was lower and fewer expensive molds are needed to make a given quantity of elements.

CIRCLE NO. 224 ON INQUIRY CARD—PAGE 17

Cuts down "DRAG"... cuts operator fatigue



No more energy wasted on handling heavier, less flexible welding cables. U.S. Royal Gold *Fluted* Welding Cable not only cuts down "drag" and operator fatigue, but also facilitates welding in cramped quarters.

EXCLUSIVE! U. S. Royal Gold's unique yellow jacket of 60% natural rubber provides unbeatable visibility, reduces the hazard of accident which is present with *black* cable. Also, the yellow jacket provides an excellent contrasting color to black for conductor identification when two cables are required on welding machines.

LONGER LIFE! The greater flexibility of U. S. Royal Gold means greater dependability at terminal connections, minimum maintenance. Higher visibility of yellow jacket, reduces danger of accidental damage, adds more life to cable.

COOLER TO HANDLE! The unusual *fluted* jacket provides greater surface area and thereby dissipates heat faster.

SUPERIOR IMPACT RESISTANCE! Proved by tests to be greater than that of conventional constructions.

GREATER MOISTURE RESISTANCE! That's because of the special 60% natural rubber insulation. Added protection is provided by the jacket, also of 60% natural rubber. Get U. S. Royal Gold at electrical supply houses.

Write address below for free folder that gives facts demonstrating the superiority of U. S. Royal Gold Fluted Welding Cable.



HIGH VISIBILITY!

US RUBBER

UNITED STATES RUBBER COMPANY

Electrical Wire and Cable Department • Rockefeller Center, New York 20, N. Y.

For More Information Circle No. 716 on Inquiry Card—Page 17

Electrical Equipment . . .



Mobile Radiant Oven Cuts Maintenance Labor Cost

One large corporation must replace worn-out asphalt tile in its offices and laboratories quite frequently. It recently cut the time consumed on this operation by nearly 50% with a Fostoria mobile radiant oven. The oven can be rolled on casters ahead of the single worker needed to strip up the melted material. Heat from the unit bakes over one square foot of floor in about two minutes. Formerly, it was necessary to perform this operation with a blowtorch. In addition to reduction in labor cost, the hazards and unpleasantness of fumes, smoke, and an open flame are eliminated with the radiant unit.

CIRCLE NO. 225 ON INQUIRY CARD—PAGE 17



Cost per Lumen Cut Over 50%

The University of California at Davis provides an excellent example of a university being a testing ground for products with industrial applications. Here lighting levels were increased 200% without changing existing fixtures and wiring. And this increase was achieved with but a 20% increase in power consumption. In each fixture, three 400-watt Westinghouse J-H1 fluorescent-mercury lamps replaced a 1000-watt incandescent lamp.

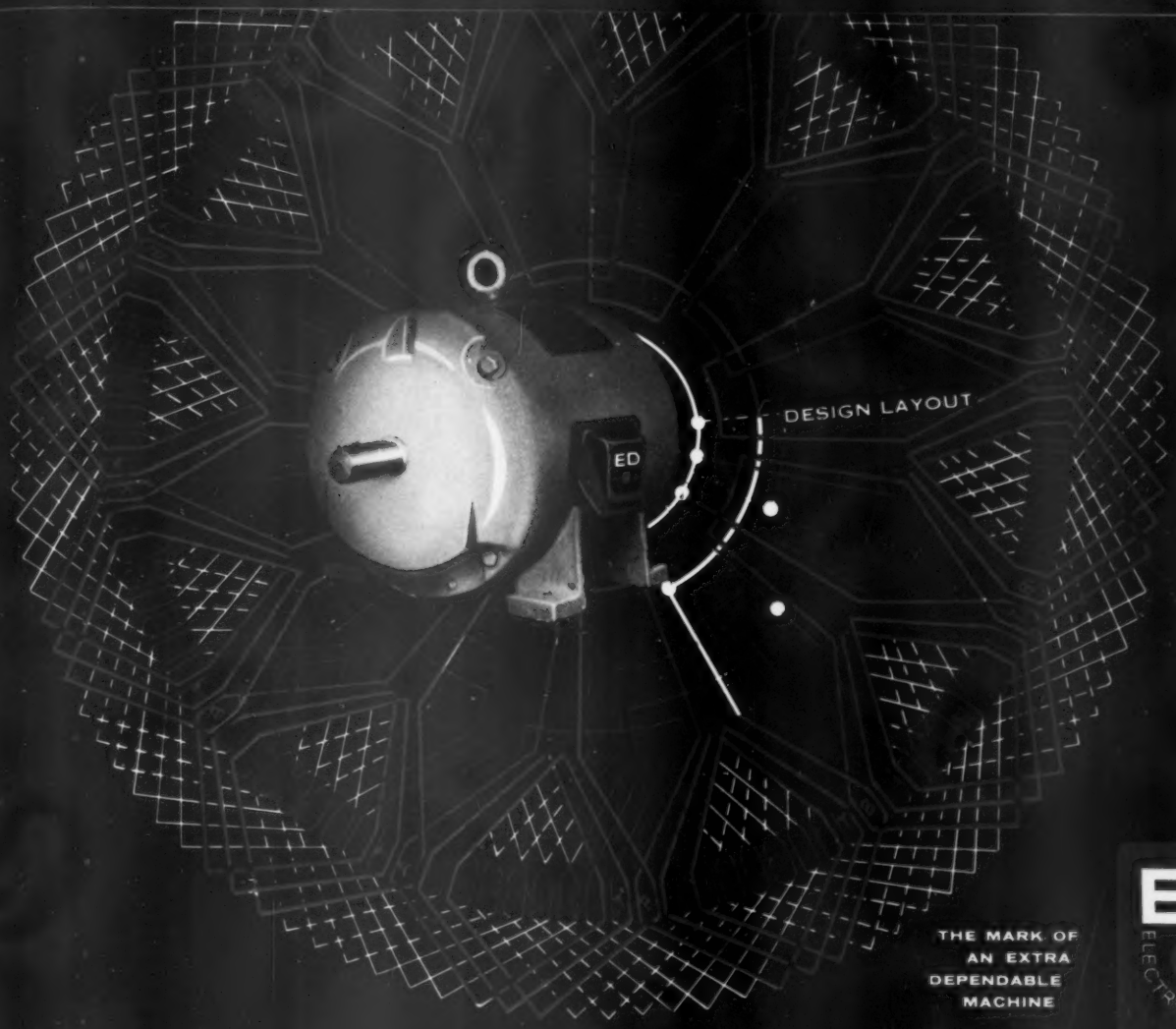
CIRCLE NO. 226 ON INQUIRY CARD—PAGE 17



Wire Output Upped 35-46% With New Insulation Material

A large eastern manufacturer increased the production of switchboard wire 35-46% and achieved considerable cost benefits by switching to Mylar polyester film as a primary insulating material. With the new insulating material it was possible to decrease the outside diameter of the wire by five mils. This benefits both the producer in handling and the user in installing the wire.

CIRCLE NO. 227 ON INQUIRY CARD—PAGE 17

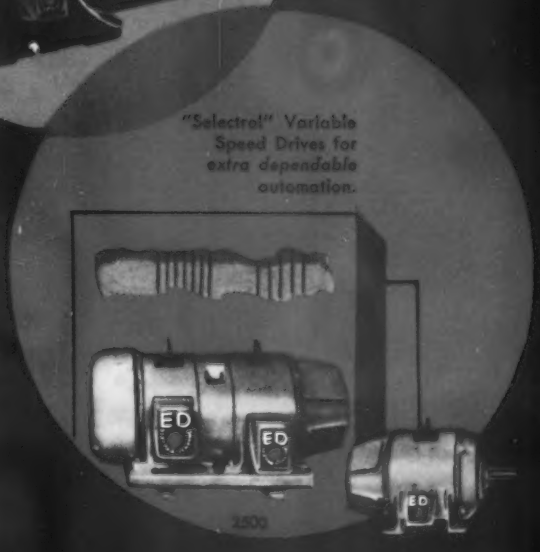


THE MARK OF AN EXTRA DEPENDABLE MACHINE

ED ELECTRO DYNAMIC

A BETTER KIND OF POWER PACKAGE





From America's foremost producer of custom designed motors come these premium-built, *extra dependable* E. D. "power packages" for *general industrial use*...75 years in the making... yours today *at no extra cost!* Write for literature.

ELECTRO DYNAMIC

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ELECTRO DYNAMIC DIVISION OF GENERAL DYNAMICS CORPORATION, BAYONNE, N. J.

TEAR OUT AND MAIL!

YES! I would like to know more about

STAR-KIMBLE

Special Motor Designs

☐ If your sales engineer will give me a ring, I'd like to talk to him AND IN THE MEANTIME, you might send me your bulletin on Standard

- ☐ SQUIRREL CAGE
- ☐ BRAKEMOTORS
- ☐ WOUND ROTOR
- ☐ D-C MOTORS

Generators, M-G Sets

*My name is*_____

*They call me a*_____ *(title)*

*At*_____ *(company)*

_____ *(street address)*

_____ *(city)* *(zone)* *(state)*

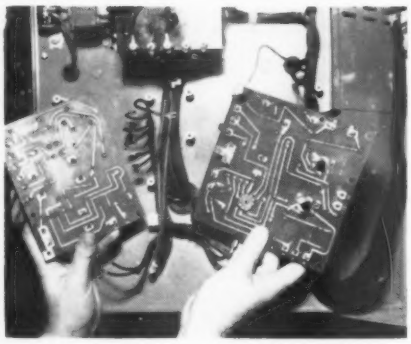
STAR-KIMBLE

MOTOR DIVISION

Miehle Printing Press and Mfg. Co.
213 Bloomfield Ave., Bloomfield, N. J.

For More Information Circle No. 720 on Inquiry Card—Page 17

Drives With Printed Circuits at 20% Less Cost



Leading manufacturers are now getting the benefits of printed circuitry in full-wave Thy-mo-trol electronic adjustable speed drives. And the cost is 20% lower than previous drives which did not incorporate printed circuits. With the printed circuit, according to General Electric, it is possible to visually inspect the panels for circuit faults since they are actually current carrying diagrems. Maintenance costs with the new unit are cut substantially. One reason for this is the fact that it uses only a single miniature type control tube compared with three conventional sized tubes in older designs.

Circle No. 228 on Inquiry Card—Page 17

Electric Heater Boosts Oil Well Output 900%

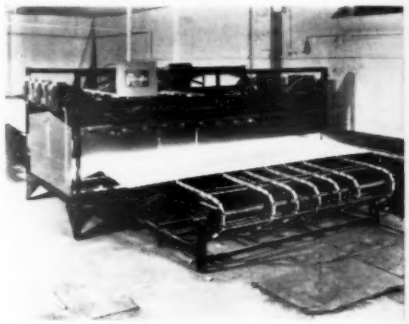


An eighteen-foot electric oil-well heater has been increasing oil output 900% in low-producing well. Wells which formerly produced five barrels a day now produce 45 barrels of crude oil. Increased production results from the faster rate of flow made possible by the heaters lowering the viscosity of the heavy sludgy oil in this type of well. Heat is provided by six 80 inch Calrod heater units connected in pairs. Total rating is 460 volts, 15 kilowatts.

Circle No. 229 on Inquiry Card—Page 17

Infrared Oven Reduces Drying Time More Than 90%

Buffalo Manufacturing Co. of Grayslake, Illinois uses a Fostoria infrared installation to force dry a white primer on 5/16″ masonite panels. Drying time is 1½ minutes. Before installing this oven, the necessary air dry time was 20 to 60 minutes, depending upon drying



conditions. The oven has permitted a doubling of production. Buffalo now turns out about 20,000 sq. ft. per 8 hr. day. The panels are 8-16″ wide and 12′ long. Total conveyor length is 33½′ including 5½′ for standard time, 7′0″ in the oven, and 21′0″ to cool down.

Circle No. 230 on Inquiry Card—Page 17

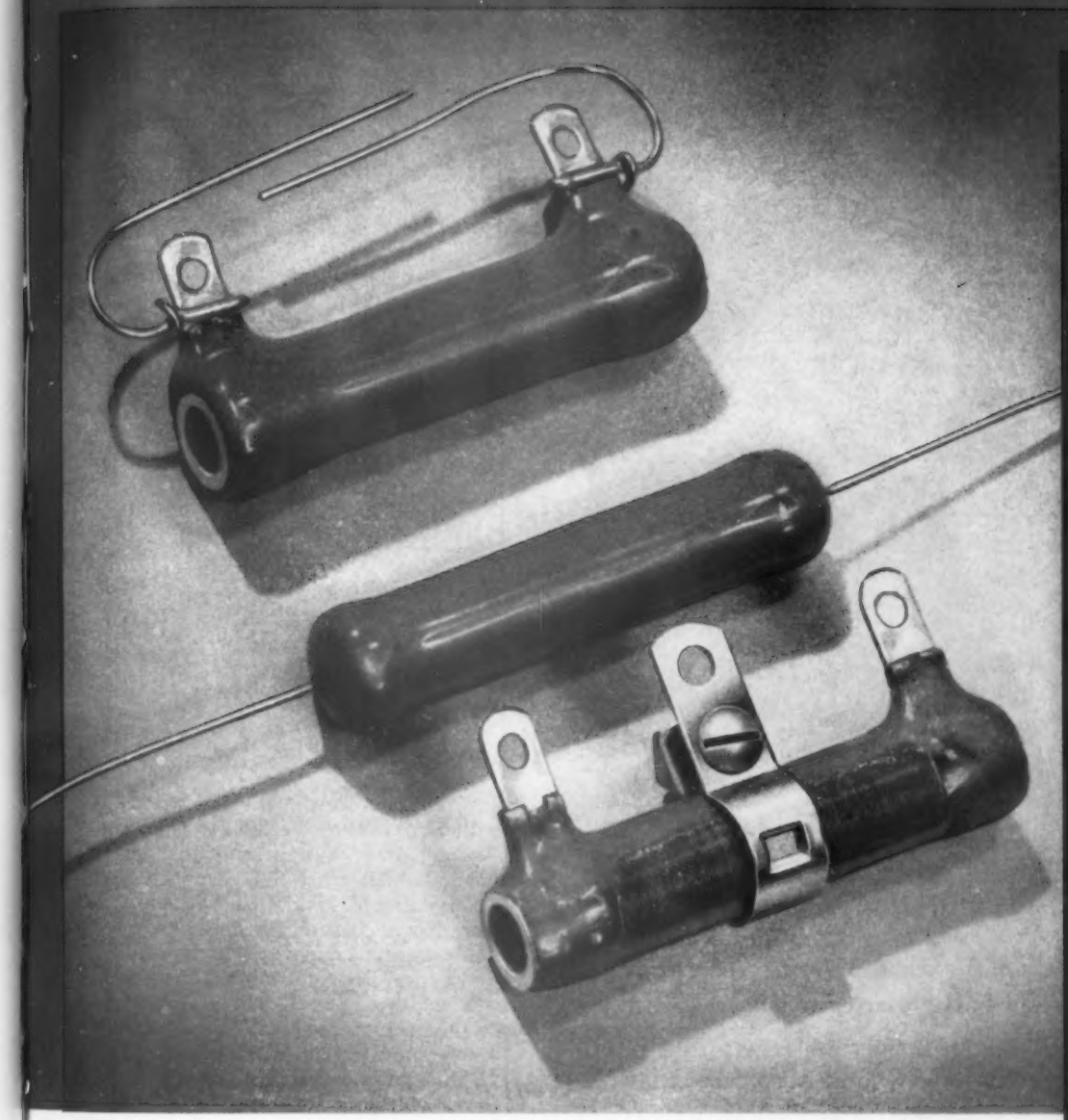
Platinum Wire Wound Potentiometer Meets Rigid Specs

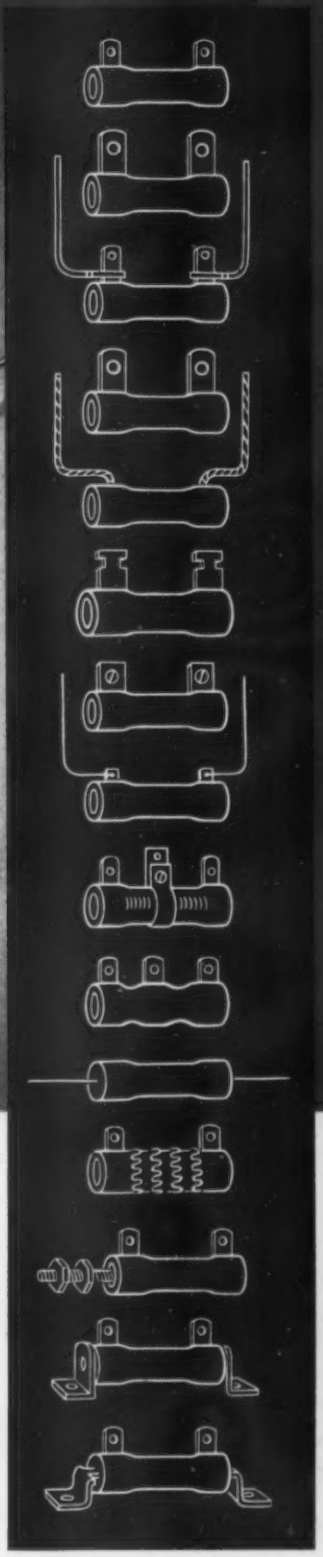


A leading manufacturer of computers for aircraft use found that a functional potentiometer with padded type winding met the desired specs in the prototype but production units did not meet the

(*Please turn to page* 312)

For More Information Circle No. 721 on Inquiry Card—Page 17→





NOTE all diameters and lengths are identical. Photo twice actual size.

How do you want your 10-watt resistors?

Here are a few of the variations you can get in basic design, terminals and mountings on a standard 10-watt Vitrohm resistor.

It's this tremendous variety (we make a wider range of resistors than anybody else) that enables Vitrohm resistors to do so many jobs so well – and save you installation costs at the same time.

Add to this Ward Leonard's performance standards – insured by the 19 separate inspection tests we run on every single resistor we make – and you see why you get more resistor for your money in a Vitrohm.

Prompt delivery, too, by the way.

Our engineers will be glad to show you which Vitrohm design best meets your specific needs. A line or call to Ward Leonard Electric Company, 450 South Street, Mount Vernon, N.Y. is all it takes. 5.4



An ELEFILAMENT never forgets. *Do You?*



Starting small, the Elefilament glows and grows until he becomes a bulky barrier to effective and economical lighting, unless you set a trap for him by maintaining good lamps and good lamp care at all times.

By good lamps we mean CHAMPION Lamps, made specially to meet the highest standards of industrial lighting.

CHAMPION *Lamps*



By good lamp care we mean the simple, effective maintenance measures described in the Champion Maintenance Manual, copy of which is yours for the asking.

CHAMPION LAMP WORKS
324 Lynnway, Lynn, Massachusetts

For More Information Circle No. 724 on Inquiry Card—Page 17

(*Continued from page* 308)

requirement of .0005 accuracy. Gyromechanisms provided a production pot that maintained this accuracy on a production basis. Specs were held by using an extremely accurate linear wind of platinum wire and a driving wiper with precisely machined sine generating mechanism.

Circle No. 231 on Inquiry Card—Page 17

New Material Increases Life of Coil Insulation 50%



Manufacturers can now get induction motors of 100 to 3000 hp rating with a new coil insulation which will last 50% longer than conventional insulation with cotton or paper bases. Needless to say, this means longer life and reduced cost per hour of motor operation. In addition the G. E. Polyex insulation increases dielectric strength 50% and mechanical strength 600%. The insulation uses Mylar, Dacron and synthetic hydrocarbon resin.

Circle No. 232 on Inquiry Card—Page 17

New Water-Tight Enclosures for Linestarters Announced

A new water-tight enclosure for all combination linestarters through NEMA size 2 is now available from the Westinghouse Electric Corporation. Fabricated from sheet steel, the new enclosure is lighter and easier to install than conventional cast iron enclosures.

Finished in bright aluminum the enclosures are equipped with Oil-Tite pushbuttons with neoprene caps where required to prevent accumulated ice or sleet from interfering with push-button operation. A neoprene gasket and cover held secure by screws makes this enclosure weather - proof, water - tight, and dust-tight. It meets the NEMA hose test.

Circle No. 233 on Inquiry Card—Page 17

applications; Incorporate requirements economically

Using precise mass-production techniques, General Electric is producing a standard line of specialty and general-purpose Dry-type Transformers with exclusive design features that result in optimum performance. G-E transformers have met the demands of industry for many years and now G.E.'s standard line of transformers has grown to cover an extremely wide range of applications. Built to industry's highest standards, G.E.'s standard line of transformers are sold at competitive prices.

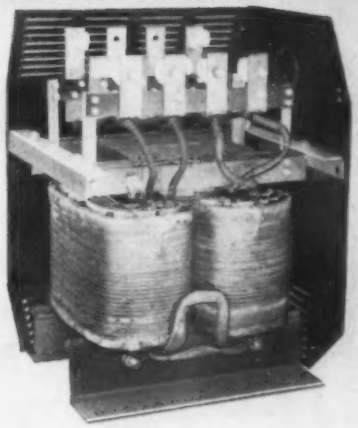
DESIGNED TO YOUR REQUIREMENTS

Today, General Electric maintains a separate department for the sole purpose of developing and producing a standard line of Specialty and General-Purpose Transformers. It is staffed with experienced engineers who will accept the challenge of solving your special transformer problem. Usually a standard unit will do the job. But, if an existing G-E model will not serve your particular need, G.E. will design one to your exact requirements. As an example, General Electric has on file more than 1000 different designs for saturable reactors, ranging in sizes from 3 to 450 kva, alone.

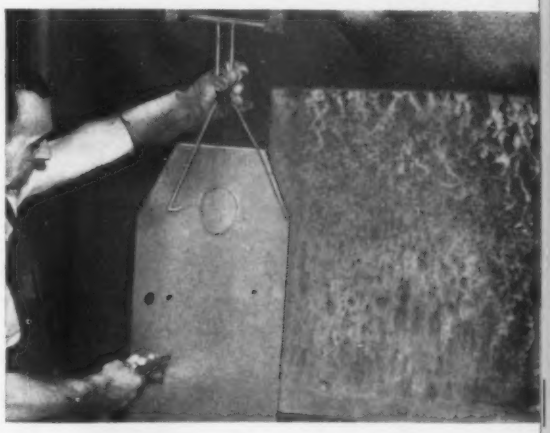
TESTED FOR ACCURACY

The same precise measures which control the quality of standard transformers are taken with the production of each specialty unit you *specify*.

In the manufacture of its Type M Transformers, for instance, General Electric submits each unit to a minimum of 18 different tests and inspections: a procedure which assures you of better performing standard-line transformers. For additional information, simply contact your nearest G-E Apparatus Sales Office. General Electric Co., Schenectady 5, New York.



Easily accessible . . .
TYPE D TRANSFORMERS. Both front and top of case are easily removed to make connections easier and to simplify maintenance.



Longer wearing . . .
TYPE D TRANSFORMERS. Cases of heavy-gage steel are finished in a durable enamel paint over a rust-prohibiting primer.



Convenient mounting . . .
TYPE D TRANSFORMERS. Narrow depth of case design permits unobstructive mounting against wall, saving valuable working area.

Make "G.E." your source of supply for all these dry-type transformers.

For detailed information on the following products write to:
General Electric Co., Section 410-7, Schenectady 5, N. Y.

Amplistats Bulletin GET-2424
Boost-buck Transformers GEC-1206
Distribution Transformers Bulletin GEC-1207
High Reactance Transformers
Ignition Transformers Bulletin GEC-1261A
Iron Core Reactors
Lighting Transformers Bulletin GEC-976, GEC-1208
Liquid and Insulation Testers
Machine Tool Transformers Bulletin GEC-1270
Magnetic Frequency Multipliers
Mercury Lamp Transformers Bulletin LS-103
Mine Load Centers
Phase-changing Transformers Bulletin GEC-1209
Photochemical Transformers
Power Packs
Power Transformers Bulletin GEC-1207
Railroad Signal Transformers Bulletin GEC-1251
Refrigerator Autotransformers
Saturable Reactors Bulletin GEC-1296
Telephone Line Insulating Transformers
Voltage Stabilizers Bulletin GEA-5754

Progress Is Our Most Important Product

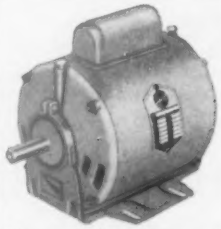
GENERAL ELECTRIC



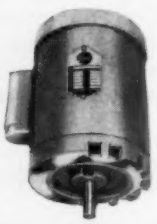
If you make any product requiring a fractional horsepower motor (any quantity—20 to 20,000 units) it will pay you to accept our invitation to test run the

new
HOOVER
HY-DRIVE

A completely new FRACTIONAL HORSEPOWER motor
...detailed to order



Compact—More Power per pound. Available with rigid, face or resilient mount as shown here. Split-phase, Capacitor-Start, or Polyphase.



Higher overload capacities, "Mylar"* insulation. Dripproof, or totally enclosed. For horizontal or vertical installation. *Du Pont Polyester film.

Over 300 Hoover Agencies stand ready around the world to give your customers prompt attention.

Get full details on this offer. Write The Hoover Company, Electric Motor Division, 218 Brook Avenue, North Plainfield, N. J.

For More Information Circle No. 727 on Inquiry Card—Page 17

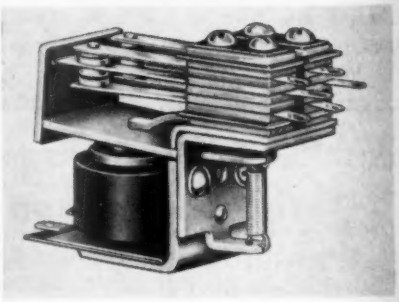
Air Thermal Starter for Fluorescents Has Manual Reset

An air thermal starter with manual reset said to be the first ever made for fluorescent lamps is announced by Verd-A-Ray Corporation of Toledo, Ohio. The new Verd-A-Ray Deluxe Sentry Air Thermal Starter is supplied with manual reset or automatic reset as desired. Heretofore all Air Thermal Starters have been completely automatic.

All studies show that early burnout of fluorescent lamps is caused by starters which fail to prevent the initial high voltage surge from striking the cold lamp. The new Deluxe Sentry Air Thermal Starter, with Gardex, is claimed to assure proper and adequate preheating and to light the lamp in one, continuous, unbroken cycle instead of by a succession of violent shocks which destroy lamp life.

Circle No. 234 on Inquiry Card—Page 17

New U/L Motor Control Relay Announced by Guardian Electric

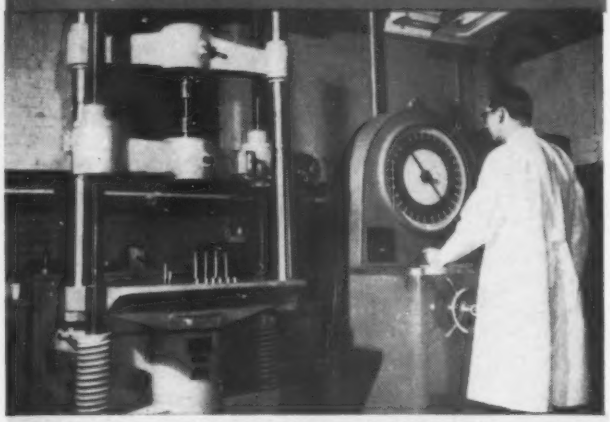


The new magnetic motor controller relay Series 210-UM being produced by the Guardian Electric Manufacturing Company, Chicago 12, Ill., carries full Underwriters' Laboratories approval. This a-c relay is available in any standard arrangement of contact combinations from single pole, single throw, normally open, to double pole, double throw. Coil voltage of the unit is 115 volts, 60 cycles. Contacts are rated at 115 V., A.C., 60 cycles, single phase, ¼ H.P. Standard coil and contact terminals are lug type, tinned for easy soldering. Bakelite insulation of the contacts is tested at 1500 volts, 60 cycles.

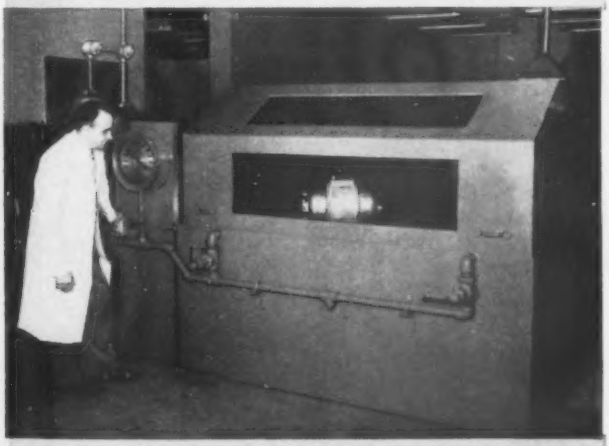
A comparatively economical unit, the Series 210-UM combines heavy duty contact construction and spacing with compact coil and field piece design. Standard double pole, double throw unit weighs 4.3 ounces.

Circle No. 235 on Inquiry Card—Page 17

CROUSE-HINDS rigid quality control *assures long-lasting products ...* CONDULET* records prove it!



Making a tensile strength test of a Feraloy bar in the Mechanical Laboratory. Constant testing insures uniform quality.



A hydrostatic test of a Type EPC explosion-proof Condulet. It must withstand a pressure 4 times as great as an internal explosion.



The first CONDULETS, introduced by Crouse-Hinds in 1905, were so well designed and so carefully manufactured that many of the early installations are still in use.... still giving dependable service after more than forty years. This record proves that where quality counts, you can count on CONDULETS!

Crouse-Hinds high standard of quality has always been controlled by careful checking and testing of both raw materials and the finished product. The CONDULET line has expanded from a few items to more than 15,000 types and sizes and the testing laboratories have kept pace with this development. They contain the latest and most modern testing equipment.

Laboratory testing is only part of Crouse-Hinds system of rigid quality control. Factory inspection is equally important. Together, they assure a superior product that will serve you better . . . and last longer!

Always specify CONDULETS.

***CONDULETS are made only by CROUSE-HINDS**

CROUSE-HINDS COMPANY
Syracuse 1, N. Y.

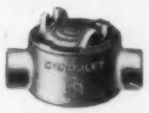
OFFICES: Amarillo — Birmingham — Boston — Buffalo — Chicago — Cincinnati — Cleveland
Dallas — Denver — Detroit — Houston — Indianapolis — Kansas City — Los Angeles — Memphis
Milwaukee — New Orleans — New York — Philadelphia — Pittsburgh — Portland, Ore.
San Francisco — Seattle — St. Louis — St. Paul — Tulsa — Washington
RESIDENT REPRESENTATIVES: Albany — Atlanta — Baltimore — Charlotte — Chattanooga
Corpus Christi — Reading, Pa. — Richmond, Va. — Shreveport
Crouse-Hinds Company of Canada, Ltd., Toronto, Ont.



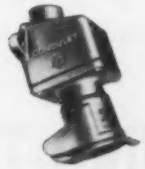
Type LB
Obround Condulet



Type EVA Explosion-Proof
Lighting Fixture



Type GUAC Explosion-Proof
Junction Condulet





Type FSC Tumbler
Switch Condulet

Type ARE
Plug Receptacle

CONDULET
First in the field
STANDARD OF QUALITY

A Nationwide Distribution Through Electrical Distributors

AIRPORT LIGHTING · FLOODLIGHTS · CONDULETS · TRAFFIC SIGNALS

For More Information Circle No. 732 on Inquiry Card—Page 17

IF YOU'RE ORDERING LAMPS BUT BUYING LIGHT...

You'll want to specify

DURO-TEST®



© 1955 DURO-TEST CORP.

Here's why:

Duro-Test lamps are America's best . . . exclusively designed for heavy industrial and commercial service.

Using the same amount of current as conventional types, they normally outlast the latter 3 to 5 times, yet maintain high lumen output throughout life.

Result? You get more and better light for less cost. Our trained representative in your area will show you how. *Write now to—*

DURO TEST®

DURO-TEST Corporation

NORTH BERGEN • NEW JERSEY

WAREHOUSES IN PRINCIPAL CITIES FOR PROMPT SHIPMENT

For More Information Circle No. 733 on Inquiry Card—Page 17

Klixon Inherent Protectors For 3-Phase, Y-Connected Motors



Spencer Thermostat Division of Metals & Controls Corporation, Spencer Thermostat Division, Attleboro, Massachusetts, announces a new line of automatic reset inherent overheat motor protectors for 3-phase, Y-connected motors, single and dual voltage through 600 volts.

As with the single phase Klixon inherent overheat motor protector, these are designed for original equipment installation by motor manufacturers. They are available in four sizes—covering a range of horsepower ratings from fractional up through 7½ hp. (600 V.).

Circle No. 236 on Inquiry Card—Page 17

Solid Switch Boxes Offer Labor-Saving Features

A complete new line of non-gangable solid switch boxes with special labor-saving features is now being produced by Keystone Manufacturing Company, Center Line, Michigan.

Built to standard dimensions of 1½″ deep x 2″ wide x 3″ long, the new switch boxes are available in a variety of styles with clamping, mounting and knock-out arrangements which permit their use on a wide range of applications.

They are said to have these features: (1) Clamps with nested fit for faster, easier pulling of wires. (2) Knockouts and "pri-outs" specially designed for fast removal. (3) One screw adjustment on mounting ears, which are strengthened by deep embossed channels. (4) Mounting ears designed to permit maximum adjustment for greater installation flexibility. (5) Leveling bumps to assure alignment with studding when box is side mounted. (6) Smooth embossed ridges to hold cable securely. (7) Adequate nail holes plus lanced nailing points on mounting brackets for faster installation.

Circle No. 237 on Inquiry Card—Page 17

For More Information Circle No. 734 on Inquiry Card—Page 17→



here there's **ELECTRICAL POWER**

Okonite electrical cables carry power for critical circuits in every major industry. And with the increasing use of automatic control systems, industry depends more and more on the electrical cables that supply the power. Dependable cable has been Okonite's business since 1878. The Okonite Company, Passaic, N. J.

. . . there's **OKONITE CABLE**







with
G-E FS-400
Watch Dog*
STARTERS

In most two-lamp fluorescent fixtures the life of the lead lamp is shortened by voltage surges occurring before the lamp cathodes are adequately preheated. G.E.'s new FS-400 Starter prevents this premature burnout by delaying the start of the lead circuit lamp until sufficient pre-heating time has elapsed.

Thus, lead lamp life is often increased 50% to 100%; average lamp life (both lead and lag lamps) 25% to 50%. As a result, maintenance costs are reduced and group relamping programs made even more practical.

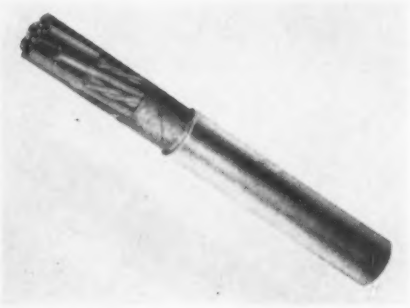
The new FS-400 offers all the other advantages of G-E Watch Dog starters, too. It automatically cuts failing lamps out of operation, protecting ballasts and fixture wiring, and eliminating lamp blinking. Then, when a new lamp is installed, pressing the red reset button starts the new lamp without the usual waiting period. And, one Watch Dog starter will outlast up to ten ordinary starters. Wiring Device Department, General Electric Company, Providence 7, R. I.

*Registered Trade-mark of General Electric Co.

GENERAL ELECTRIC

Circle No. 731 on Inquiry Card—Page 17

New Cable Construction for Hot (up to 200C) Locations



The Okonite Company's Okotherm-insulated, aluminum-sheathed cable is designed for continuous operation at 150C and up to 200C under certain conditions. Available for both power and control cable circuits, it provides an extra labor-saving advantage through its own built-in aluminum conduit.

The main advantages are described as Flame and heat resistance; No conduits and related "pulling-in" problems; moisture and ozone resistance; space-saving small diameter; light weight for easy handling; high dielectric strength; corrosion resistance.

Applications, construction components, dimensions, terminating techniques, and fittings are described in new bulletin 1088, available from The Okonite Company, Passaic, N. J.

Circle No. 238 on Inquiry Card—Page 17

First All-Silicone-Rubber Motor Insulation

Allis-Chalmers Mfg. Co. has announced the first all-silicone-rubber insulating system for large motors and generators. Known as the Silco-Flex system, it is immediately available for all Class H insulated form wound coils and for Class A and B windings operating under certain service conditions.

The development brings closer the goal of perfect insulation — one that would never deteriorate or change in dielectric or mechanical properties, regardless of load, during the life of the machine. Silco-Flex insulation uses Dow-Corning's Silastic silicone rubber as a basic material. Silicone rubber has the flexibility and resilience of natural rubber and the outstanding thermal endurance and moisture resistance common to all silicone compounds.

In the manufacture of Silco-Flex insulated stator coils, silicone rubber is applied to conductors and vulcanized into a homogenous mass by application of heat and pressure. The result is a sealed, impervious dielectric barrier, continuous around the coil and leads, which forms a flexible, moisture and heat resistant wall over the entire coil structure.

Advantages of the new insulating system include superior heat resistance, moisture resistance, abrasion resistance, flexibility, resilience, chemical inertness, and improved heat dissipation.

Circle No. 239 on Inquiry Card—Page 17

Precision Shell Molding Machine Aided by Electrical Controls



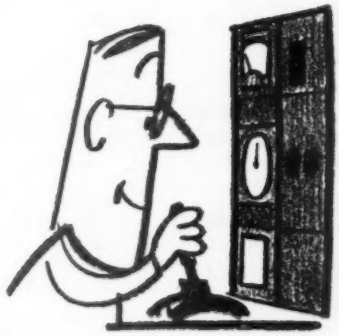
A new machine made by Shell-O-Matic, Inc. now produces precision shell molds on a production basis in 90 seconds or less. This remarkable speed on an ordinarily expensive and time consuming operation is aided by highly intricate electrical controls made by Automatic Switch Co. These include ASCO solenoid valves and ASCO electromagnetic control panels. The valves, used in conjunction with cylinders, close the pattern plate, upset the hopper and propel the curing oven. The panel, in addition to controlling the valves, adjusts the heat input and times the investment and curing cycle.

Circle No. 240 on Inquiry Card—Page 17

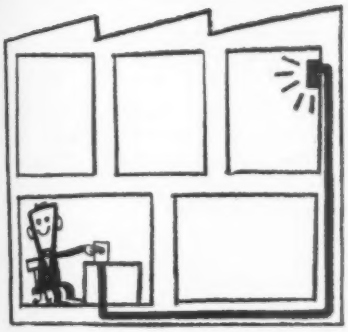
I-T-E Circuit Breaker Protection



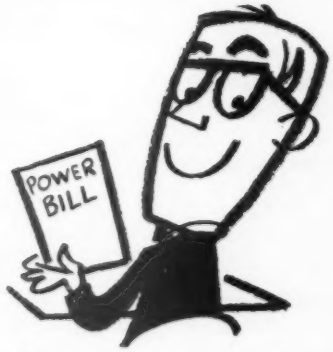
4 They are completely tamperproof. Breaker is calibrated and sealed at the factory.



5 They are twice-tested individually at the factory to insure uniformity of operation in the field.



9 They can be equipped with internally mounted auxiliary devices for under-voltage protection, remote tripping and indication of circuit condition.



10 They incur low watts loss. Welded connections and silver alloy contacts provide low watts loss throughout the life of the breaker.

I-T-E Molded Case Circuit Breakers are rated through 600 volts a-c, 250 volts d-c, 10 through 600 amp. I-T-E also supplies a complete line of enclosures for all applications. Contact your I-T-E representative or authorized distributor for the Speedfax Catalog. Or write Small Air Circuit Breaker Division, I-T-E Circuit Breaker Company, 19th and Hamilton Sts., Philadelphia 30, Pa.

I-T-E CIRCUIT BREAKER COMPANY • Small Air Circuit Breaker Division

For More Information Circle No. 736 on Inquiry Card—Page 17

NEW INFORMATION FOR YOUR ELECTRICAL CATALOG FILES

QUIET OPERATING SYNCHRONOUS MOTORS

Over 125 hysteresis and salient pole induction synchronous motors are covered in brochure EI-4A, which is replete with photos and line drawings. Performance data characteristics are given.

Electric Indicator Co., Inc.

Circle No. 243 on Inquiry Card—Page 17

CONDUIT FOR CORROSIVE CONDITIONS

Results of tests on a heavy-duty, rigid steel electrical conduit for use under severe corrosive conditions are enumerated in a 3-color brochure. Conduit reduces maintenance costs.

National Electric Products Corp.

Circle No. 244 on Inquiry Card—Page 17

LOWER COST LIGHTING

How group fluorescent lamp replacement is more economical in the long run than individual replacement is illustrated in 16-page brochure, documented with cost data.

Sylvania Electric Products, Inc.

Circle No. 245 on Inquiry Card—Page 17

FRACTIONAL HP MOTORS

Motors with a horsepower range from 1/2000 to 1/6 are covered in a 12-page illustrated catalog. Tables, photos and line drawings indicate performance and applications of over 3500 types.

Bodine Electric Products

Circle No. 246 on Inquiry Card—Page 17

SURFACE WIRING DUCTS

A 4-page brochure supplies information on various forms of ducts and fittings for surface wiring. It shows how they fit over 300 devices made by leading manufacturers. They install easily.

National Electric Products

Circle No. 247 on Inquiry Card—Page 17

CONTROLS FOR ALL PURPOSES

Designated GEC-1260A, a two-color, 68-page catalog lists a wide variety of general purpose devices. A special section correlated by hp components for each type of motor control use.

General Purpose Control Dept., General Electric

Circle No. 248 on Inquiry Card—Page 17

SOURCE FOR ELECTRO-MECHANICAL PRODUCTS

Facilities for the designing and production of precise electromechanical and electronic products form the text of a 20-page illustrated booklet. Services for industry are outlined.

Transitron, Inc.

Circle No. 249 on Inquiry Card—Page 17

HOW TO BUY FHP MOTORS

Designated GEC-1026, a bulletin presents complete buying information on standard a-c fractional and integral hp motors in most general use. A section on selection covers hp requirements.

General Electric

Circle No. 250 on Inquiry Card—Page 17

BASIC TYPE RELAYS

Physical and electrical characteristics of a complete line of a-c and d-c relays are covered in 72-page catalog. Operating data and suggested applications are included, with photos.

Guardian Electric Mfg. Co.

Circle No. 251 on Inquiry Card—Page 17

CONNECTORS WITH RIBBON CONTACT

Connectors, made of a phenol compound, with a ribbon type contact, instead of conventional pin and socket contacts are described and illustrated in catalog R1. They connect mating pairs fast.

American Phenolic Corp.

Circle No. 252 on Inquiry Card—Page 17

WHAT CIRCUIT BREAKER TO SELECT

A 16-page manual, discusses factors affecting the selection of low voltage air circuit breakers. Booklet defines, with illustrations, application terms.

Federal Pacific Electric Co.

Circle No. 253 on Inquiry Card—Page 17

SAFE ELECTRIFICATION OF CRANES

28-page, illustrated catalog 8-54 explains the principles of enclosed conductor systems for the safe electrification of cranes and monorails. It contains an illustrated parts list.

Insul-8-Corp.

Circle No. 254 on Inquiry Card—Page 17

USES OF ELECTRICAL PRECIPITATION

A 28-page bulletin describes principles of electrical precipitation. Selections are devoted to chief applications: power plants, blast furnaces, pulp and paper, etc. Photos supplement text.

Research-Cottrell, Inc.

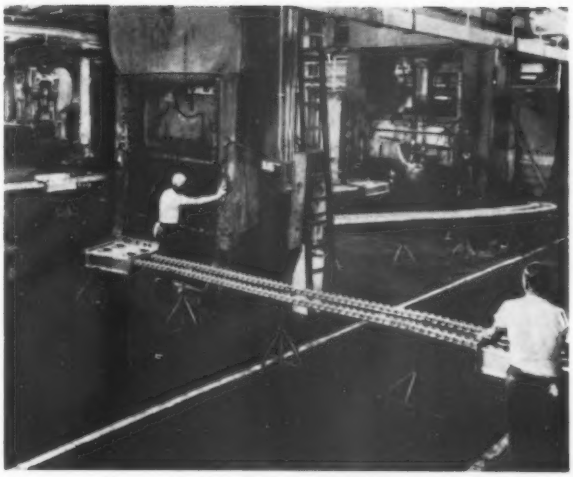
Circle No. 255 on Inquiry Card—Page 17

ELIMINATING RADIO INTERFERENCE

Full details are given in catalog No. FSR on suppression filters for induction heating equipment, X-ray units, etc., which may produce radio interference. Graphs permit correct selection.

Filtron Co., Inc.

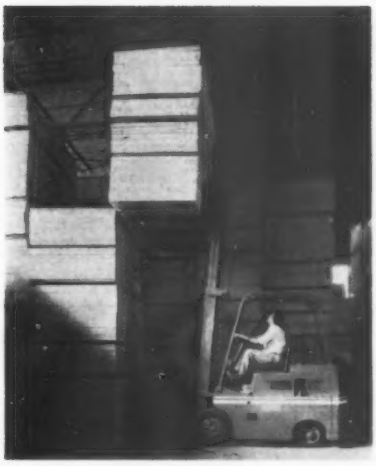
Circle No. 256 on Inquiry Card—Page 17



Conveyor System Pays for Itself in Month

In its stamping room, RCA-Appliance, Hamilton, Ohio used to move tops of cooking ranges from press to press by means of six-wheel carts. Operations were time-consuming and parts were often damaged during handling. Live rails and portable folding stands made by Alvey-Ferguson were set up to run from press to press. The press operator now receives parts at his work station from "feed-in" conveyor and sends worked parts to next station on "take away" conveyor. Parts are no longer damaged and equipment paid for itself in a month by eliminating spoilage and reducing material handling time.

CIRCLE NO. 257 ON INQUIRY CARD—PAGE 17



Lift Truck Enables Firm To Store More At Lower Cost

Lenc-Smith Manufacturing Co., makers of sewing machine cabinets, office furniture, etc., uses two lift trucks for moving and stacking lumber. A Clark Utilitruc with a 138″ lift moves, in an average day, 50% more than the other truck. Addition of the Clark truck enables the firm to store 10 freight cars of lumber more than it did before the truck was bought. Freight cars that took four men all day to unload are now unloaded in four or five hours.

CIRCLE NO. 258 ON INQUIRY CARD—PAGE 17

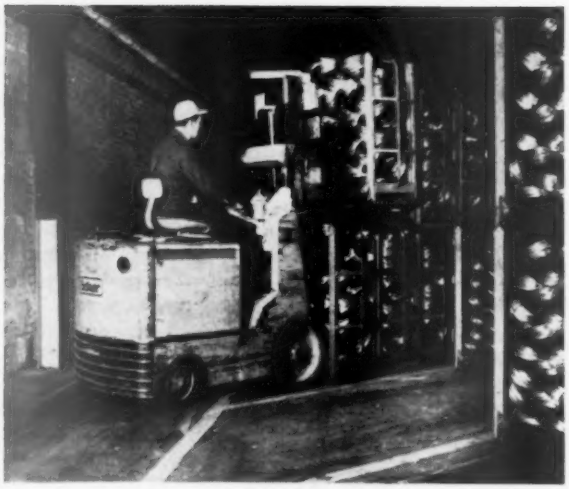


Small Parts Handling System Increases Production 35%

Nutone, Inc., maker of door chimes and ventilating equipment, used NesTier small parts handling boxes and hopper rack assemblies on its assembly lines. By making component parts more readily accessible to workers and eliminating rehandling of parts the units brought a 35% production increase at assembly stations. In addition, 20% of all other parts handling operations have been eliminated through conversion to the NesTier system, a product of the Chas. Wm. Doepke Mfg. Co., Inc.

CIRCLE NO. 259 ON INQUIRY CARD—PAGE 17

Materials Handling . . .



High Stacking Cuts Costly Floor Space Requirements

Caloric Stove Company discovered that, besides reducing floor space requirements, high stacking could permit full utilization of freight car space. Ranges are now loaded in box cars with a saving of 80 man-hours with a Towmotor fork truck. Component parts on pallets are now stacked 10 feet high with the truck. As a result storage capacity is doubled.

CIRCLE NO. 260 ON INQUIRY CARD—PAGE 17



Wire Steel Boxes Cut Costs

Gehl Bros. Mfg. Co., West Bend, Wis., manufacturers of farm crop handling equipment, has a materials handling system based on use of stackable, collapsible, Cargotainer wire steel boxes. Costing about $42 apiece, the steel boxes replaced wooden tote boxes, costing only about $2 apiece. The higher initial cost has been amply justified. The steel boxes have 3 times the capacity of the wooden tote boxes and outlast them 4 to 1. Other applications of Cargotainers at Gehl's plant include degreasing where they cut labor costs 37½%.

CIRCLE NO. 261 ON INQUIRY CARD—PAGE 17



Fibre Boxes Cut Inter-Departmental Handling

McGill Mfg. Co.'s Valparaiso, Ind. plant requires transportation of electrical guard cages, metal and fibre stampings from department to department. It had no uniform containers for material handling, using whatever was available, mostly wooden boxes, for the purpose. Result was cluttered assembly floor area and congested aisles. By using Continental-Diamond Fiber tote and stacking boxes the McGill company has eliminated maintenance costs on wooden boxes and substantially reduced handling costs of parts on assembly line as one man in one trip can move several of the lightweight boxes.

CIRCLE NO. 262 ON INQUIRY CARD—PAGE 17

If you're growlin' about replacement costs . . .

IT'S TIME TO SPECIFY MONARCH INDUSTRIAL SOLID TIRES

IF YOUR COMPANY HAS MONEY "TO BURN"... TURN THE PAGE. We are talking *only* to buyers who want to reduce solid tire replacement costs . . . with no sacrifice of performance or quality. That's our specialty. That's why Monarch gives you premium lift truck tires at standard prices.

Monarch pressed-on solids are manufactured from higher quality materials than *the best premium passenger car tires.* This is no idle claim! Our tires last longer because they actually are made better. It's as simple as that.

We can supply a complete range of types and sizes to meet every normal or special need.

If economy is your goal . . .
MONARCH IS YOUR TIRE!



THE MONARCH RUBBER COMPANY

459 LINCOLN PARK • HARTVILLE, OHIO
7-255 General Motors Bldg., Detroit 2, Mich.

6194-MR

TORTURE TESTS PROVE...







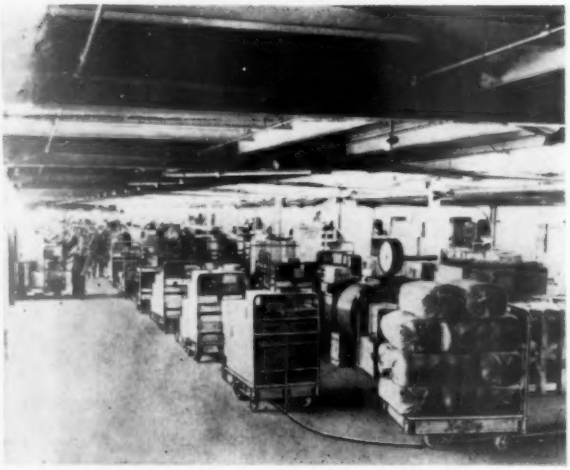


Engineered fatigue tests . . . on these standard tires . . . produced these results

For the complete story, write for Bulletin TD-200.

. . . MONARCH Mono-Cushions® WEAR BETTER . . . LAST LONGER

For More Information Circle No. 739 on Inquiry Card—Page 17



Trucks Cut Handling by 25%

Consolidated Freightways reports a drastic reduction in damaged shipments, faster handling of material, reduced maintenance of dock equipment, and fewer stray shipments since installing its material handling system at 7 of its major docks. This is in addition to a 25% reduction in cross dock handling. With the new system, incoming freight is loaded on trucks manufactured by Nutting Truck & Caster Co. The trucks are towed by underfloor conveyor by various bays for cargo removal and transfer to highway carriers.

CIRCLE NO. 263 ON INQUIRY CARD—PAGE 17



One Man Does Work of Three; Costs Cut Accordingly

At a large bottling plant it was found that one man with a Barrett-Cravens electric lift truck was the equal of three men with hand trucks. So hand lift trucks have been completely replaced with 4000 lb. capacity walking type electric trucks. Reason for greater output per truck operator is the ability of the electric truck to handle larger loads and move more tonnage per man-shift.

CIRCLE NO. 264 ON INQUIRY CARD—PAGE 17



Scrap Unloading Time Cut From 96 Hours to 18 Hours

Bridgeport Brass Co. used to unload 100,000 pound carloads of loose scrap with a 4 man crew. The job took 24 hours or 96 manhours. Now it does the same job with a Towmotor truck equipped with a scrap attachment, a driver, and two helpers. The car is unloaded in six hours and only 18 manhours. Unloading time is cut 81.25% and efficiency per man increased 533%.

CIRCLE NO. 265 ON INQUIRY CARD—PAGE 17

T LAST! Really Automatic Materials Handling...

IMPROVED PRODUCTION OF MACHINE OPERATORS
INITIAL INSTALLATIONS SHOW
SENSATIONAL SAVINGS
IN HANDLING TIME—





Work receiving box in same stand conserves floor area.



Big hopper holds work supply during box changing.

re's materials handling history
OW-MATION* by Powell—the
atest innovation in materials
dling in a decade.
r standard lift truck—no spe-
attachments needed—sets a
OW-MATIC* box on a special
k. The box opens under its own
ght, discharging contents into
k level hopper. Operator drops
shed piece through chute into
per to second box below. It's
simple as that.

Those who have seen it in action agree—there's nothing like it for cutting production time, reducing handling hours, lowering operator fatigue, conserving floor space—for saving you time and dollars. But get the entire story. See your Powell representative. He has full literature and working models. Or write direct to Powell for your copy of Powell FLOW-MATION* Systems, a specially prepared pamphlet that explains the entire system.

OW-MATION and FLOW-
TIC are trade names of
ell Pressed Steel Co.—
uct Patent Pending.

POWELL
PRESSED STEEL
Since 1920



Get Your Free Copy

Mail Coupon Today →

flow-mation* Systems

the POWELL PRESSED STEEL Co., Dept. 465 'HUBBARD, OHIO

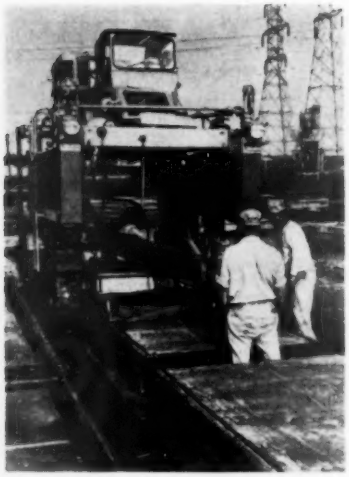
I would like a copy of FLOW-MATION*, the illustrated pamphlet that gives full details of the new Powell FLOW-MATION* System.

Name _____

Title _____ Company _____

Address _____

City _____ State _____



Straddle Carrier Saves $250 A Day on Construction Job

A midwestern construction company selected a Ross straddle carrier for moving pre-cast concrete units on a large building job. The choice of the carrier was based on the fact that the job involved short hauls, and the flexibility of the machine through its ability to spot and re-spot given loads. The difference in cost between the two methods showed that the straddle carrier was saving $250 per day, or about $1.25 per ton of material handled.

CIRCLE NO. 269 ON INQUIRY CARD—PAGE 17



Palletizing Cuts Handling Cost 50%, Breakage 90%

The O'Donnell Distributing Co. of Elyria was the first wholesaler in the state of Ohio to completely palletize its operation. Using a 2000-pound capacity Yale & Towne fork truck, it cut handling cost 50% and reduced breakage by 90%. Prior to adoption of palletizing and use of a fork truck, each package was handled four times between receiving and shipping. Three men were kept busy at what is now accomplished by one man and a fork truck.

CIRCLE NO. 270 ON INQUIRY CARD—PAGE 17



Stacking System Enlarges Warehouse Space

An increase of 25% has been achieved by the Handyspot Co., of Northern California in the number of lines handled by the same warehouse. The system uses double deck pallet racks and a high lift platform type and a hand lift truck, both made by the Revolvator Co. The lift platform truck with a lift of 120″ and 2500 lb. capacity does the brunt of the heavy work, with the hand lift truck supplementing it for "spotting" specific loads. Multiple shelves have increased floor space utilization substantially.

CIRCLE NO. 271 ON INQUIRY CARD—PAGE 17

ENTIRELY NEW...differently NEW

MAINTENANCE-FREE OPERATION



"CM-Alloy" FLEXIBLE LINK CHAIN

LIGHT WEIGHT
¼ ton model weighs only 51 pounds.

SELF-ADJUSTING HEAVY DUTY BRAKE

OVERLOAD PROTECTION

FULLY ENCLOSED COMPONENTS

SEALED-IN LIFETIME LUBRICATION

ADJUSTABLE SAFETY LIMITS

LOWEST HEADROOM

PUSH BUTTON CONTROL

CAPACITIES from ⅛ to 1 ton.
Single and 3 phase.

$149.50 and up

...designed to serve you without costly maintenance

Lodestar is the first truly "heavy duty" version of the small electric hoist. It is built to serve you without costly maintenance or interruptions in your work schedules. The Lodestar is designed to serve **you**... not to be served.

Fully enclosed construction guards the Lodestar against damage. Sealed-in lifetime lubrication protects it against wear. Special alloys make it rugged. The newest materials, components and design techniques give the Lodestar its stamina, efficiency, simplicity and safety. The initial cost is practically your only cost with a Lodestar...an extremely low cost indeed!

CHISHOLM-MOORE HOIST DIVISION
Columbus McKinnon Chain Corporation
Tonawanda, New York
REGIONAL OFFICES: NEW YORK • CHICAGO • CLEVELAND
In Canada: McKinnon Columbus Chain Ltd., St. Catharines, Ont.

Lodestar®
CM
HOISTS AND CHAIN

WRITE US OR CALL YOUR CM DISTRIBUTOR FOR LODESTAR LITERATURE, PRICES AND QUICK DELIVERY FROM STOCK

For More Information Circle No. 742 on Inquiry Card—Page 17



Powered Unit Cuts Material Handling Time By 33⅓%

The task of keeping foundry bins at the Dodge Steel Co., Philadelphia, supplied with sand and cereal binders formly required 24 manhours per day. Now the job is done with a Bell Prime Mover in 16 manhours. Another of these powered units hauls steel melting scrap to the electric furnaces in half the manhours previously required.

CIRCLE NO. 272 ON INQUIRY CARD—PAGE 17



Fork Truck Attachment Stops Wasted Shipments

The Sunset Beverage Co., Los Angeles, Calif., used to waste $150 to $300 a month by accidentally shipping out cases of full bottles along with empty ones. It equipped its fork lift truck with a Martin-Decker lift-truck scale. Now by watching the gage, the truck operator can immediately detect if cases of "fulls" get mixed up with a pallet load of cases that were supposed to be empty. The principle can be applied to cans or other containers.

CIRCLE NO. 273 ON INQUIRY CARD—PAGE 17



Conveyor System Saves 30 Manhours per Week

Keller Tool Co. of Grand Haven, Mich. used to handle tool and small parts orders with hand trucks and platform trucks. Aisles were dangerously cluttered, orders did not flow smoothly, and employee time was spent lifting and trucking. The company installed a 40 foot gravity conveyor, a 47 foot power belt conveyor, and a 170 foot Power-Veyor—all supplied by the Rapids-Standard Co. Movement of orders has been speeded up 25% as a result and savings are estimated at 30 manhours per week. Efficiency and employee morale have also improved.

CIRCLE NO. 274 ON INQUIRY CARD—PAGE 17

LITTLE JOB?

BIG JOB?

delicate job ?



...cela ne fait rien

There's a Colson® CASTER RIGHT for your needs



BIG JOB?

COLSON Forgeweld Casters

The world's finest caster for extra heavy duty requirements. Wheels of cast steel, iron, rubber, molded plastic—in capacities up to 6000 pounds per caster.

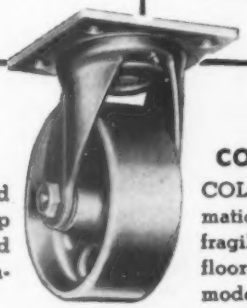
That's right! Whether you work in Paris or Peoria, whether you make pies or pig iron, there's an easy-rolling COLSON Caster that meets your needs—*exactly*. For the price of new, roll-easy COLSON Casters you can convert old, bumpy hard-to-push hand trucks to an efficient, smooth-sailing fleet—at very small cost.

Why not write today for free booklet on COLSON materials-handling equipment, or better still, look in the yellow pages (under "Casters") for the Colson office near you?

LITTLE JOB?

COLSON PressWeld Casters

An improved low-cost caster with hardened raceways and unbreakable fork and top plate. Ideal for dollies, racks, box trucks and similar applications in the moderate capacity range.



delicate job ?

COLSON Pneumatic Casters

COLSON Pneumatic and Semi-Pneumatic casters are ideal for handling fragile products over rough, bumpy floors. Available in rigid or swivel models with 6", 8" or 10" tires.



THE COLSON CORPORATION

ELYRIA, OHIO

CASTERS • HAND TRUCKS • LIFT JACK SYSTEMS

Hydraulic, Electric and Mechanical Power Lifts and Transports

For More Information Circle No. 745 on Inquiry Card—Page 17



Special Assembly Trucks Cut Handling Costs 15%

Ten handling operations are eliminated in the assembly of refrigerator and freezer doors by using castered trucks at the Evansville plant of International Harvester Co. A 15% reduction in handling cost is estimated as being attained by the new handling system. Previously, the operation was done with a powered slat conveyor but employees had difficulty reaching all areas of the door panels. With trucks using Faultless casters, this problem was solved.

CIRCLE NO. 275 ON INQUIRY CARD—PAGE 17



Two-Wheel Trucks Cut Handling Labor 90%

Road delivery trucks of a Cincinnati contractor, hauling bags of sugar from freight terminals to processing plants, used to average 400 bags a day. Now they handle 625 bags. Also, at delivery end, 5 men once took 30 minutes to empty a truckload of sugar. Now 1 man can do it in 15 minutes. Instead of being carried individually on a man's back to the truck 7 bags are loaded into a pallet, and moved by a 2-wheel Twin-Tilt truck with a pivoting platform.

CIRCLE NO. 276 ON INQUIRY CARD—PAGE 17



Wire Mill Slashes Handling Costs With Fork Trucks

A small Midwestern wire mill cut both materials handling time and labor crew with fork trucks and palletization. It has two Baker electric trucks which can be switched from forks to rams or rams to forks in 10 minutes. As ram trucks, they handle in-process coils of wire. As fork trucks, they handle palletized raw materials and scrap containers. As a result, the handling crew in wire fence storage was cut 75%; shipments of zinc pig on pallets were unloaded in half the time; and storage space increased 50% through use of pallets and pallet racks.

CIRCLE NO. 277 ON INQUIRY CARD—PAGE 17

No other shelving offers greater value!

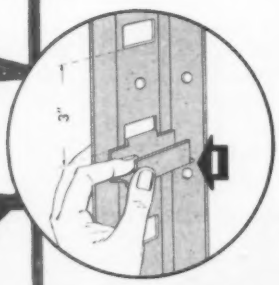
BORROUGHS

*UNITIZED *flexi*

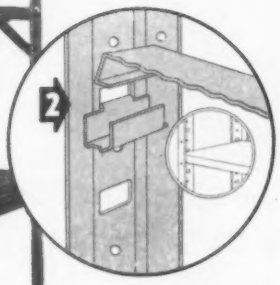
STEEL SHELVING

***Every unit is a unit within itself**





INSERT SHELF SUPPORT BRACKET . . no fumbling with studs, bolts, nuts or lock washers.



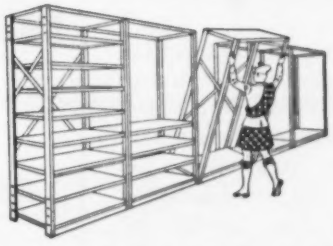
TILT SHELF INTO SUPPORT BRACKET . . and you're finished. Shelf is now ready for loading.

more than posts and shelves



Yes, Borroughs Steel Shelving is more than ordinary shelving. It is engineered shelving—designed to give you the most adaptable and most practical shelving your money can buy... every square inch of it is top shelving value. It is rugged, and will last a lifetime. Before you buy any shelving, investigate Borroughs' . . the shelving that pays dividends right from the first day of its installation.

send for Catalog



* **Each individual unit is complete in itself** . . . no part depends on unit next to it . . any unit or shelf can be moved independently.

BORROUGHS MANUFACTURING COMPANY

A SUBSIDIARY OF THE AMERICAN METAL PRODUCTS COMPANY OF DETROIT

3002 NORTH BURDICK amp KALAMAZOO, MICHIGAN

For More Information Circle No. 748 on Inquiry Card—Page 17

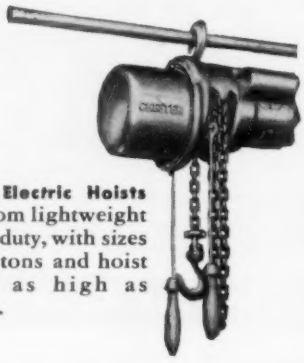
CHESTER HOISTS

get work done fast

NEW...Versatile Lightweight Zephyr



Spur-geared, built for safe, one-man handling, this all-steel lightweight is ideal for riggers and millwrights. Compact, fully encased and sealed construction fits the Zephyr for close-quarter, minimum headroom operation anywhere . . . even under extremes of outdoor exposure. Sizes range from ½ to 2 tons.



Chester Electric Hoists range from lightweight to heavy duty, with sizes up to 2 tons and hoist speeds as high as 30 f.p.m.

Heavy, spur-geared, hand chain Chester Hoists are available in sizes up to 25-ton capacity, all containing precision Timken bearings.

Special hoists—Army types, extended handwheel, low headroom trolley hoists and low cost Chester Differential Hoists are also available.

Contact your distributor or write for specification literature on the type of hoist that interests you.

CHESTER HOIST DIVISION

National Products

The National Screw & Mfg. Co.

LISBON, OHIO

For More Information Circle No. 749 on Inquiry Card—Page 17

Investment Cost Cut 40% With Special Truck

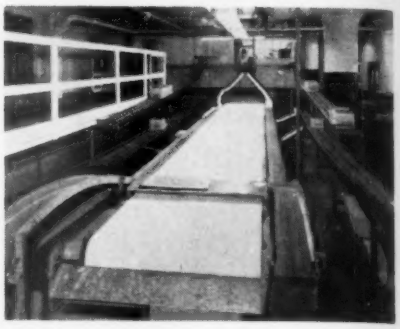


Original investment costs were slashed over 40% by Elwell-Parker Electric Co. for International Fiber Board Ltd., Gatineau, Canada by means of a specially designed high lift platform truck. It is designed to carry loads 9′ long and 4′ wide and will handle 100 tons in a shift. It is equipped with extendable forks instead of a conventional platform. A standard model fork truck would have to be much larger to handle loads 9-foot long and cost proportionately more.

Circle No. 278 on Inquiry Card—Page 17

Conveyor System Drastically Cuts Hand Truck Labor

Overhauling of the materials handling system, including installation of Standard conveyors, in the Robert A. Johnston plant in Milwaukee has resulted in virtual elimination of hand trucks, 2/3 reduction in floor area required for handling,



and considerable reduction in breakage. The conveyor system is expected to pay for itself many times in man-hours saved. It has resulted in complete mechanization of movement of materials from the fifth floor of the plant down to the shipping area on the first floor.

Circle No. 279 on Inquiry Card—Page 17



Seven Major Consolidated Freightways Terminals

Save 25% with *Nutting* Tow-Line Trucks

In addition to 25% savings in cross dock handling, Mr. J. H. Howay, Supt. of Terminals, reports reduced damages, speeded up departure schedules and fewer astray shipments.

In motor freight terminals, plants and warehouses, Nutting Tow-Line Trucks are cutting costs daily. Here's why . . .

- Less Supervision
- Unattended Transportation
- Less Maintenance Cost
- Reduced Handling Cost
- No Unpleasant Exhaust Fumes
- No Oil & Scum Deposits on Floors

Whatever your loads and operating conditions—whether for Tow-Line Systems or for manual operation, there are Nutting Trucks to exactly suit your needs. Investigate cost-cutting Nutting Trucks today.

For complete details write for your copy of Bulletin 54-TL. Or call your Nutting Sales Engineer . . . he's listed in the yellow pages under "Trucks" or "Casters".

NUTTING TRUCK & CASTER CO.

1270 DIVISION ST., FARIBAULT, MINN.

QUALITY BUILT *Since 1891*

For More Information Circle No. 750 on Inquiry Card—Page 17



Stapling Replaces Tape and Wire Bands, Costs Down 70%

Rexco Corporation of Los Angeles used to utilize gum tape and wire bands for fastening the tops and bottoms of small corrugated cartons containing auto parts. Now a stapling plier (Bostitch model P6-8P) is used. As a result, production costs have been cut by 70%. The stapling plier is more than twice as fast as the former method and it makes cartons easier to stack and handle.

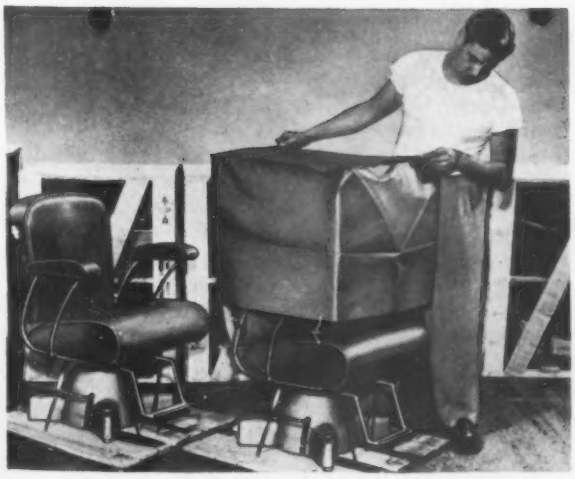
CIRCLE NO. 281 ON INQUIRY CARD—PAGE 17



Compact, Lightweight Crate Cuts Freight Costs 30%

American Kitchens Division of Avco Manufacturing Corporation has cut freight costs 30% since it switched to a special crate produced by the Atlas Plywood Corp. With the new container more sink units and dishwashers can be packed in a car and this cuts shipping costs. In addition, it is stronger and easier to assemble than the previous container. It can be securely closed with the speedy new stapling guns.

CIRCLE NO. 282 ON INQUIRY CARD—PAGE 17



Bags Reduce Packaging Time; Costs Cut In Half

Rayette Missouri Division formerly wrapped its line of beauty parlor furniture in kraft wrapping paper. Not only was the process slow, but the paper scratched the product surface. By changing to Pro-Tex-Mor bags, made by Central States Paper & Bag Co., the firm found it could package the furniture more simply and more rapidly. The move cut packaging costs in half. And the specially treated paper eliminates friction and prevents scratching of fine surfaces.

CIRCLE NO. 283 ON INQUIRY CARD—PAGE 17



Air Shipment Cuts Down Time

By air shipment, the General Electric Co. ended a power shortage that was costing about $1000 per hour. Thus, a New Mexico mining company was able to resume operations. The shipment was a 5759 pound armature for a 600 hp motor operating a rotary power scoop. Delivery was made within 30 hours from General Electric's Erie, Pa. plant to Dallas, Texas. Emery Air Freight accomplished this feat through a combination routing via truck to airplane to truck.

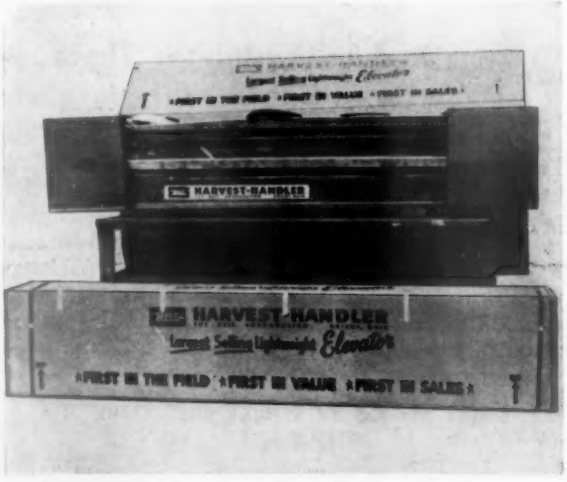
CIRCLE NO. 284 ON INQUIRY CARD—PAGE 17



Fibre Box Cuts Weight 25 lbs., Shipping Cost Reduced

Dayton Pump Manufacturing Co. used to ship its household water systems in wooden boxes. It reduced costs by switching to specially designed corrugated fibre boxes supplied by Container Corporation of America. Each new box weighs 25 lbs. less and freight costs are reduced accordingly. Inaddition it protects the product better.

CIRCLE NO. 285 ON INQUIRY CARD—PAGE 17



Fiberboard Package Saves $10,000 Yearly

Grain and bale elevators are now shipped by Belt Corp., Orient, Ohio, in a three-piece fibreboard package. Formerly they were shipped in a slotted crate. The new package contributes added protection to the elevator in transit as it completely encloses the lightweight aluminum product. It was designed by the Gaylor Container Corp. to permit packing of the elevator nested, instead of in one long section.

The more compact package permits shipment of 80 units per truckload instead of 60 units. Packing labor has been cut 45% from 13 man-minutes to 6 man-minutes. In addition, the new package costs 50% less. Over-all savings add up to $10,000 per year.

CIRCLE NO. 286 ON INQUIRY CARD—PAGE 17



CHECK THE BOX AT THE BOTTOM

Gaylord Boxes

... to see how Gaylord Boxes save you money in warehousing. They make possible taller stacking to better utilize your valuable storage space. The superior materials and precision construction of Gaylord Boxes help prevent "stack-bottom bulge."

For proof of how Gaylord Boxes can protect your profit, as well as your product, call your nearby Gaylord office.

CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT PAPER AND SPECIALTIES • KRAFT BAGS AND SACKS

GAYLORD CONTAINER CORPORATION ★ ST. LOUIS

SALES OFFICES FROM COAST TO COAST ★ CONSULT YOUR LOCAL PHONE BOOK

For More Information Circle No. 756 on Inquiry Card—Page 17

Packaging and Shipping . . .



New Adjustable Steel Shelves Slash Order Filling Costs

Sanson & Rowland, Inc. is a large Philadelphia distributor of nuts, bolts and screws. It installed standard adjustable steel shelving units, made by Standard Pressed Steel Co. The new shelving is said to have speeded order picking to a point where the packing department cannot keep up with the pickers. A saving of $2000 a year has been effected in picking costs alone.

CIRCLE NO. 287 ON INQUIRY CARD—PAGE 17



Repainting Saves $25-$300 per Thousand Cartons

Several large manufacturers are cutting packaging costs substantially by repainting expensive corrugated cartons with a carton-colored paint, made by Luminall Paints, Chicago. Savings of $25 to $300 per thousand cartons are possible for firms that can block out old lettering and make old cartons look like new. In addition to repainting of used cartons, the carton paint can also be used to cover up mistakes in shipping information, model number, or make of a product which has been marked on the carton.

CIRCLE NO. 288 ON INQUIRY CARD—PAGE 17



Switch to Corrugated Box Cuts Costs 10%

When Electro-Therm, Silver Springs, Md., began using a new design of corrugated shipping box, made by Hinde & Dauch, to package its electric water heaters, packaging costs dropped 10% and distributor volume climbed 50%. The full flap slotted box provides two thicknesses of board on top and bottom, assuring ample protection, whether used as a single shipper or packed in master units. The 1 lb. 6 oz. box makes an attractive shelf package that presumably contributed to the sales increase.

CIRCLE NO. 289 ON INQUIRY CARD—PAGE 17



A truck in the night meets another rush order for Rheem Fibre Drums

Time is money! That's why Rheem's distribution system, which covers more major markets faster, is so important to you.

Every day, huge trailer trucks loaded with Rheem Fibre Drums leave the Rheem plants on the East Coast, in the Midwest, and on the West Coast bound for the plants of users who rely on Rheem to supply them with the containers they need *when they need them.*

This ready availability enables Rheem customers in most of America's major markets to meet tight shipping schedules even though they do not keep a large supply of containers on hand. In many cases, Rheem Fibre Drums are delivered by truck *right to the point of use.* This not only saves time, but also cuts handling costs.

Fibre drums are inexpensive, light weight, "tailor-made" containers offering an amazingly tight seal and sturdy protection for your product.

For complete information on how Rheem Fibre Drums can save you time and money, write today to the Rheem office nearest you.

Did you know these facts about Rheem Fibre Drums?

1. They can be colorfully decorated, at low cost, through the silk screen process. Or, if you wish, labels may be used.
2. Special interior linings can be applied to give the proper chemical protection to a wide variety of products.
3. Special laminates can be built into the drum walls to provide an added moisture barrier without adding greatly to the cost.
4. The light weight of sturdy, durable, economical Rheem Fibre Drums reduces shipping costs. Empty drums can be nested to save space.



Switch in time, Switch to **Rheem** Fibre Drums

About ⅓ the weight of steel—and less than ½ the cost!

801 Chesley Ave., Richmond, Calif. • 4361 Firestone Blvd., South Gate, Calif. • 7600 S. Kedzie Ave., Chicago 29, Ill. • U. S. Highway #1, Linden, N. J. • Box 6718, Sparrows Point 19, Md.

For More Information Circle No. 757 on Inquiry Card—Page 17



Switch to Lighter Container Reduces Shipping Weight

Starline Inc., Harvard, Ill., manufacturers of dairy barn equipment, used to make its own heavy wooden crates for its sheet metal barn-top ventilators. Since it started purchasing prefabricated wirebound crates, the company has cut shipping container weight from 85 to 60½ pounds—with corresponding savings in freight cost. In addition, packing-for-shipment cost has been cut appreciably and so has shipping container failure and shipping damage.

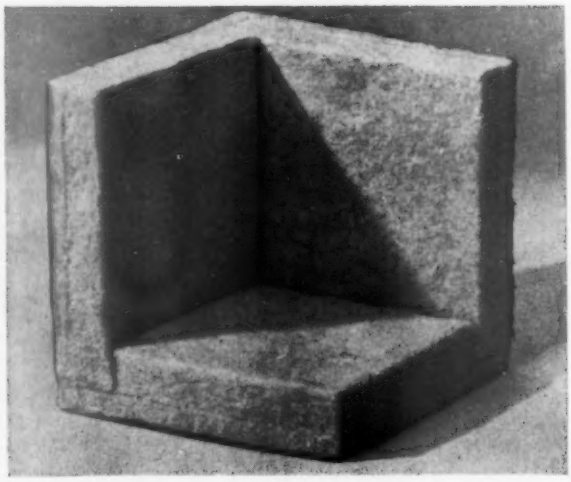
CIRCLE NO. 290 ON INQUIRY CARD—PAGE 17



Corrugated Nail Boxes Save 70% Storage Space

Tough, compact nail boxes, designed by Gaylord Container Corp., have replaced traditional wooden nail kegs at Wilson Steel and Wire Co. of Chicago. They are shipped in flat palletized loads which take up less than 30% of the space formerly required for keg-type containers. Filled and sealed, the box has three corrugated walls at every corner and affords smooth kraft surfaces for printing brand and product identification.

CIRCLE NO. 291 ON INQUIRY CARD—PAGE 17



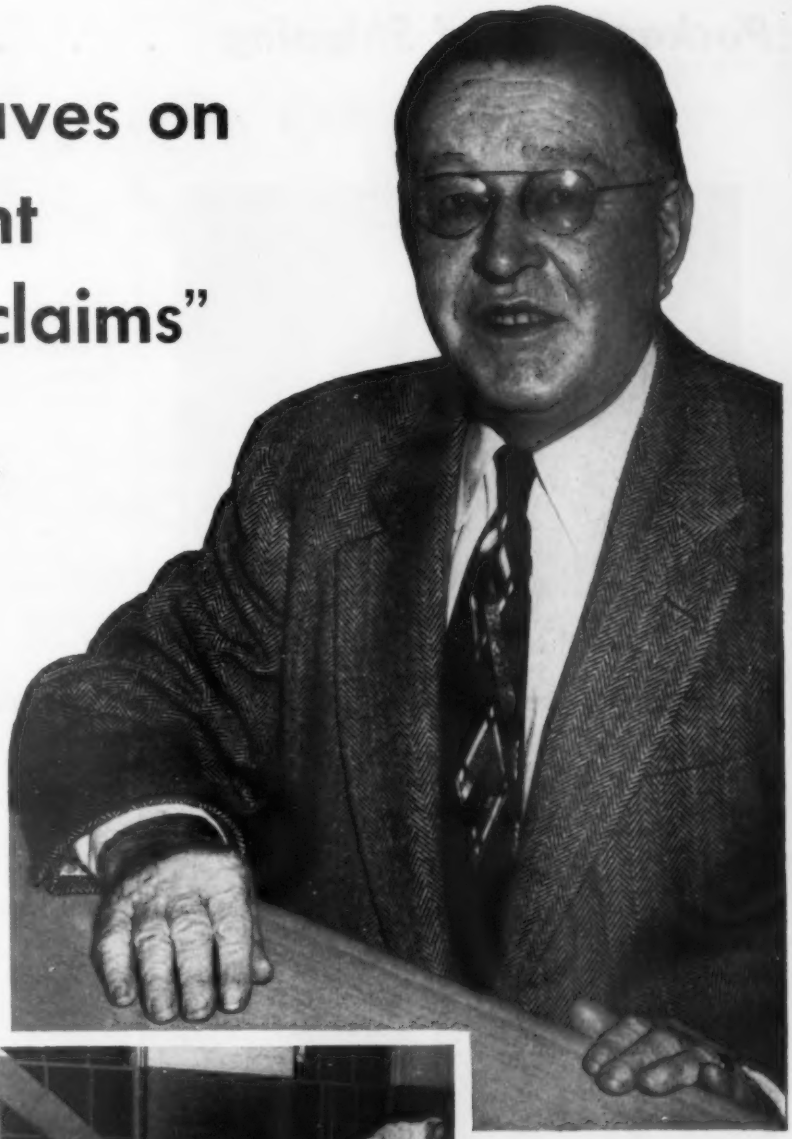
Special Pad Cuts Material Cost 20%, Labor Time 90%

A manufacturer of military electronic equipment used to wrap sheets of rubberized fiber around its product to assure protection by flotation during shipment. Now it uses pre-cut Tufflex corner pads. As a result, it has eliminated 90% of the labor previously required to fabricate the fiber sheets and pack the product. In addition, storage space used for the packaging material has been reduced 75%. The Tufflex cellulose felted padding need be used on corners only and, thus, material costs have been cut 20%.

CIRCLE NO. 292 ON INQUIRY CARD—PAGE 17

"Art Metal saves on assembly, freight and damage claims"

says Albin Johnson, Company Vice President



"— and we have a better container, since we began using Atlas Plywood's Ply-Fold crates for shipping Art Metal desks," Mr. Johnson reports.

"We particularly like the fact that Atlas Plywood Ply-Fold crates come to us partially assembled. That saves us valuable assembly time. We know, too, that these Ply-Fold crates keep our desks snug and undamaged in transit. This is a gain in convenience, economy, and efficiency.

"So you can say that our decision to investigate Atlas Plywood's lab-testing methods has given us substantial savings in everything that has to do with shipping our product."



Art Metal desks are built and finished with care — and Atlas Plywood's Ply-Fold crates "handle them with care." Desks feature smooth-sliding drawers, generous knee space, smart appointments . . . crates keep desks tight and shift-free in transit.



Safe and economical traveling is assured this Art Metal desk. The Ply-Fold crate protects all its smooth surfaces without expensive padding . . . it packs in cars without wasting space, is strong, durable, light . . . protects desk from bumps and jolts.

FREE Booklet!

New, illustrated 24-page booklet, "How Atlas Plywood Cuts Your Shipping Costs . . . Safely", may help you avoid needless product damage or too-high freight costs. Write — or see your Atlas Plywood representative (see yellow pages). Learn about the laboratory where Atlas Plywood containers win their lab-tested label. Atlas Plywood Corporation, Dept. P-10, 1432 Statler Bldg., Boston 16, Mass.

Atlas Plywood

CORPORATION

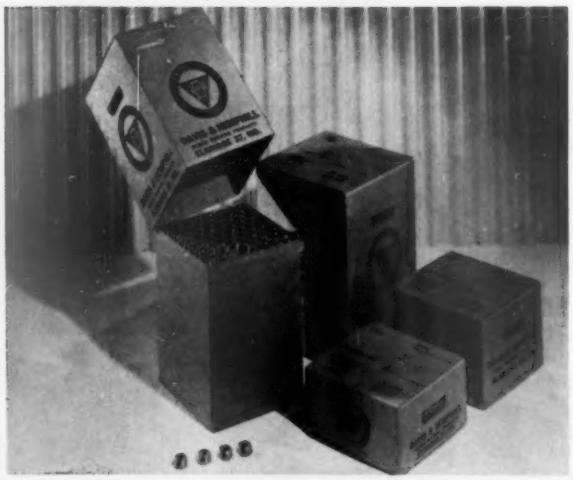
FROM AMERICAN FOREST TO FINISHED PRODUCT

PLYWOOD CONTAINERS • FLUSH DOORS • HARDWOOD PANELS

LAB TESTED



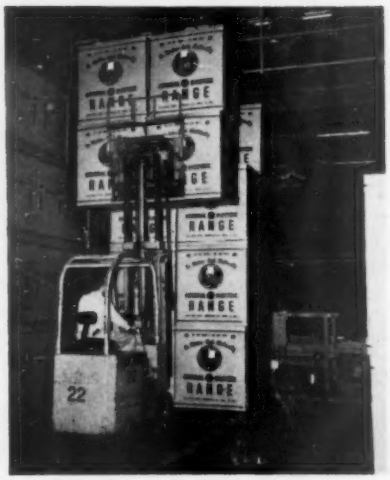
For More Information Circle No. 758 on Inquiry Card—Page 17



Corrugated Boxes Cost Less, Cheaper to Ship

Davis & Hemphill, manufacturers of screw products in Elkridge, Md., saved money on two counts with the adoption of heavy duty corrugated boxes as shipping containers. They are less expensive than the wooden models formerly used. Also, they are lighter and more compact, thus saving on both shipping and storage space. They are built by Hinde & Dauch on a telescopic principle, which allows rapid closure without gluing, stitching or taping.

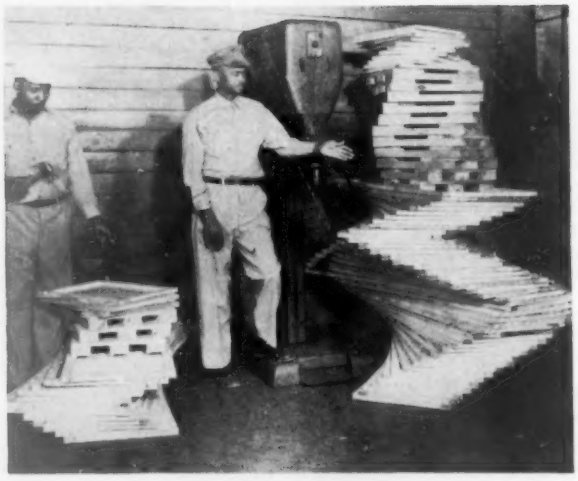
CIRCLE NO. 293 ON INQUIRY CARD—PAGE 17



Vendor-Customer Cooperation On New Package Brings Big Savings

Inland Container Corporation and General Electric joined in developing a new corrugated range box so effectively designed that it has brought impressive savings. Material costs have been reduced 20% and damage claims are down 80%, with no increase in assembly labor. Before packing, 50% more new style containers can be stored in a given space along the assembly line. When packed, greater stacking strength permits 25% greater use of warehouses. Better carloading saves an average of 9% per unit in transportation costs over the former wooden crates.

CIRCLE NO. 294 ON INQUIRY CARD—PAGE 17



Nailing Machine Increases Container Output 300%

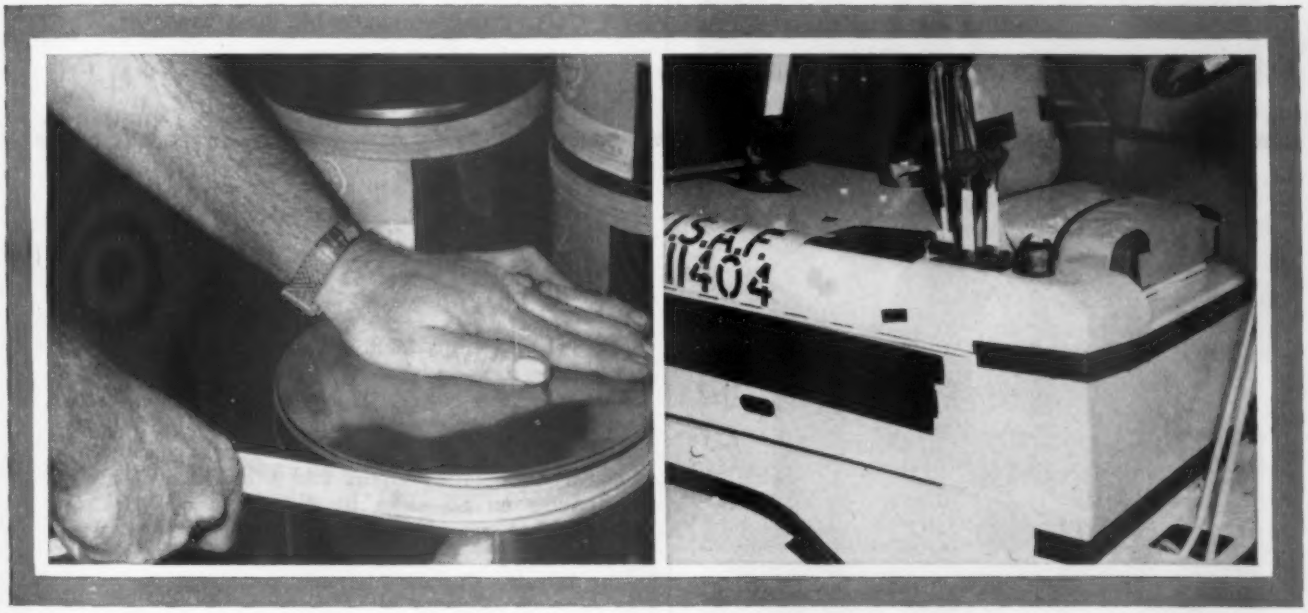
Auto-Nailer Co. time studied a man working with a hammer and a man working with an automatic nailing machine. A shook assembly consisting of a bottom skid, top, two sides, front and back, took 5.17 minutes per assembly with the machine. Done by hand, the job took 20.60 minutes—a 4-1 margin in favor of the machine. The machine cuts and drives its own nails. Nail length is controlled by a selector. Manufacturer is Auto-Nailer Co.

CIRCLE NO. 295 ON INQUIRY CARD—PAGE 17

Polyken TAPES

CONTROLLED STRENGTH

KEEP PRINTING INKS MOIST, LIFT TRUCKS DRY



Here you see *Polyken* Tape being used in two different applications—each requiring a dependable, low-cost moisture barrier.

The cans of printing ink at the left are sealed to prevent the ink from drying out. The tape also protects the contents from dust and keeps the tops secure during rough handling and shipping. The durable cloth-backing of *Polyken* permits repeated use of the tape.

The lift trucks in the other picture—scheduled for overseas shipment—have a waterproof seal of *Polyken* Tape for protection against salt water damage.

In both cases, the ease of applying *Polyken* Tape right from the roll saves many man-hours. And because *Polyken* Tape *stays put*, less is needed for an efficient seal.

These cost-cutting advantages result from *Polyken controlled strength*—the right combination of backing and adhesive to do the best possible job *with the least possible tape.*

Whether your need involves sealing; protection in storage and shipment; wrapping and packaging; or a special requirement—you can depend on Polyken *Controlled Strength* Tapes.

Get complete information by sending the coupon.

Polyken®

INDUSTRIAL TAPES

Polyken Products Department of The Kendall Company

Polyken, Dept. P-F
222 West Adams St., Chicago 6, Illinois

Please send me physical properties and further information on *Polyken* Controlled Strength Tapes.

Name_____ Title_____

Company_____

Street Address_____

City_____ Zone___ State_____

←For More Information Circle No. 759 on Inquiry Card—Page 17

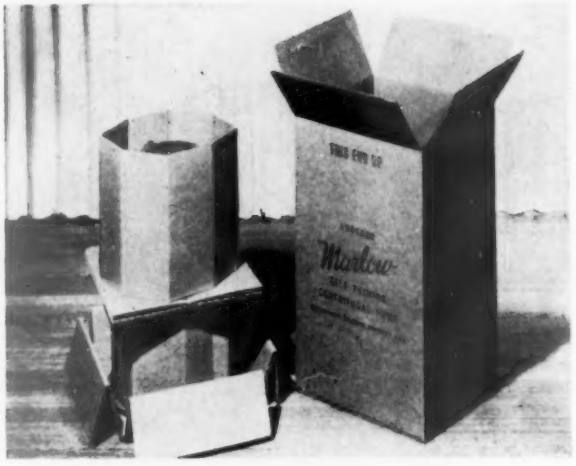
For More Information Circle No. 760 on Inquiry Card—Page 17



Packaging-Shipping Cost of Machine Cut by $26.27

A saving of $26.27 from the previous method is rung up by the National Cash Register Co. every time it packs one of its Class 31 accounting machines in a special wirebound box. Adoption of this type of container saved $22.60 on the cost of box alone, $3.30 per unit in average domestic shipping charges, and $.37 in packing-for-shipment labor. It also reduced shipping weight by 134 pounds and practically eliminated shipping damage.

CIRCLE NO. 296 ON INQUIRY CARD—PAGE 17



25% Saved, Damage Ended By Engineered Shipping Box

Marlow Pumps switched from a package that required a wood base to a Hinde & Dauch adaptation of the regular slotted shipping box, with specially-engineered interior packing pieces. This has resulted in a saving of 25% in packaging costs. Complete support and protection of merchandise on all sides by the box and packing pieces has completely eliminated shipping damage. Pumps cannot shift in transit, because of the interior die-cut pieces.

CIRCLE NO. 297 ON INQUIRY CARD—PAGE 17



Material Change Cuts Both Packaging & Shipping Costs

A manufacturer of refrigerator parts found a way to cut packaging material costs 50%, and packaging labor 60%. In addition, it reduced parcel post charges by 12¢ per package (from 20¢ to 8¢) and cut costly damage claims 35%. Here's how this saving was accomplished on packaging and shipping a refrigerator bin grip. With the old method, the part was wrapped with a tremendous piece of single face sheet, the ends were pinched, cross taped, and over wrapped in Kraft. Now the part is wrapped more securely with a piece of Corroflex sheet and sealed with a strip of gummed tape.

CIRCLE NO. 298 ON INQUIRY CARD—PAGE 17



Late shipments, late shipments, they always came late!
Delays were unbalancing Jack's mental state . . .



Then, just in time, he discovered this cure
RAILWAY EXPRESS ships things swift, safe, and sure!

The big difference is

Whether you're sending or receiving, whether your shipment is big or small, and whether it's moving by rail or air—you'll find it pays to specify Railway Express. It makes the big difference in speed, economy, and safe, sure delivery.

• • •

To bring you even better service, Railway Express has just invested 9½ million dollars in 3,000 new, high-efficiency trucks. It's another example of how free enterprise, like Railway Express, constantly works to serve the public best.

RAILWAY EXPRESS AGENCY

. . . safe, swift, sure

For More Information Circle No. 761 on Inquiry Card—Page 17



Do YOU have a HARD-TO-PACK Product?

LET

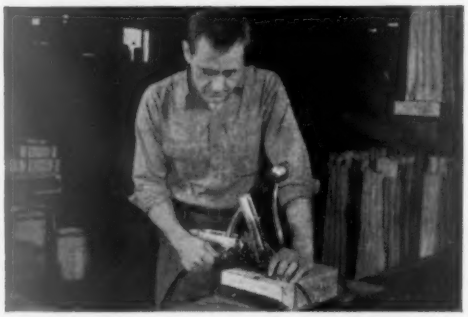
STANLEY ®

STEEL STRAPPING

DO THE JOB

Easier...Faster...Better

The Tool Division of Hubbard & Company, Pittsburgh, Pa., manufacturers of railroad maintenance tools, wanted to pack four sledge hammers in one bundle, yet keep container needs to a minimum for economy's sake. Another requirement was protection of the hammer heads' bright finish, which has sales appeal value. Here, another difficult packing job was made easy by using Stanley Steel Strapping.



The heads of the four hammers are encased in a "semi-carton" and bound in place by two bands of ½" Stanley Steel Strapping, applied with the Stanley ACE Strapping Tool. ***Four*** hard-to-pack products become ***one*** compact, secure and economical package.

The Stanley Steel Strapping Specialist has ideas that will improve ***your*** materials handling operation. He'll ***prove*** that Stanley has steel strapping hand and power tools that will pack ***any*** product easier, faster, safer.

Mail coupon today for free Catalog and to arrange an obligation-free appointment.

STANLEY INSURE IT – SECURE IT WITH STANLEY STEEL STRAPPING

STEEL STRAPPING DIVISION

THE STANLEY WORKS

STANLEY STEEL STRAPPING DIVISION, 876-S LAKE ST., NEW BRITAIN, CONN.
Telephone: BAldwin 9-2021

☐ *Please send Catalog SS-9C.* ☐ *Please have Representative call.*

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POSITION_____

COMPANY_____

CO. ADDRESS_____

CITY_____ ZONE____ STATE_____



STANLEY TOOLS • STANLEY HARDWARE • STANLEY ELECTRIC TOOLS
STANLEY STEEL STRAPPING • STANLEY STEEL

For More Information Circle No. 762 on Inquiry Card—Page 17

Switch to Fibre Box Cuts Container Expense



Sheffield Corporation of Dayton, O. used to pack its precision products in high-cost wooden containers. It cut container cost substantially and speeded packing time by changing to a corrugated fibre box. Inner support in the new container is provided by fibreboard which provides sufficient cushioning for safe shipment. Supplier of the box is Wabash Fibre Box Co., Terre Haute, Ind.

Circle No. 299 on Inquiry Card—Page 17

Special Material Reduces Packaging Cost 33%



A manufacturer of heavy industrial electrical switch gear formerly used double faced corrugated to wrap parts for inter-plant shipment. Although but moderate cushioning and dust protection were required, it gave inadequate protection unless it was used skillfully. The company cut costs of packaging material by a third when it changed to a special Sherman Jet-Wrap. The Jet-Wrap can be wrapped as fast as plain kraft paper (and faster than double face) and gives consistenly good cushioning at lower cost.

Circle No. 300 on Inquiry Card—Page 17
For More Information Circle No. 763 on Inquiry Card—Page 17→



For More Information Circle No. 764 on Inquiry Card—Page 17

for Yourself
or for the
People of Your Company

Mayflower
LONG DISTANCE MOVING SERVICE...



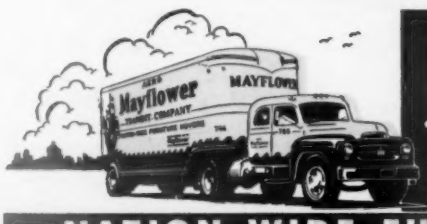
EASY FOR EVERYONE—No need to dread a long-distance move. Mayflower does all the work. Moving out and moving in, Mayflower Service is *complete*... settles you comfortably!



SAFE FOR THE FURNITURE—Mayflower movers, all graduates of the Mayflower Movers' School, know how to protect your possessions . . . use only the finest materials and equipment. Yes, you can rely on Mayflower for full satisfaction!

Mayflower's organization of selected warehouse agents provides on-the-spot representation at the most points in the United States and Canada. Your local Mayflower agent is listed in the classified section of your telephone directory.

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AERO Mayflower
America's Finest

NATION-WIDE FURNITURE MOVERS

For More Information Circle No. 765 on Inquiry Card—Page 17

Automatic Dispensers & New Tape Cut Packaging Costs



Ford Instrument Co., manufacturers of precision computers for the armed forces, tested 25 different brands of gummed tape and chose a super standard tape which requires no wetting agent. They reported that their first three orders of super standard tape more than paid for the cost of six new automatic tape dispensers. Through increased packaging efficiency and using less tape to secure a seal, it was calculated by George Schlessinger, chief storekeeper, that Ford Instrument saves over $1100 a year with the new tape.

Circle No. 301 on Inquiry Card—Page 17

Packaging Change Cuts Damage, Saves $2200 Annually



Fisher Radio Corporation needed a closure that would insure that its sensitive products reached customers safely. According to Avery Fisher, president, a switch to Blue Ribbon tape cut packaging time more than 20%, and "we save 20% on tape consumption. Thus we get an extra $3.00 worth of work per man per day in our shipping department. In the course of a year, our super standard tape saves us approximately $2200 in labor cost and, at the same time, gives us the safe, strong closure that is so important."

Circle No. 302 on Inquiry Card—Page 17

For More Information Circle No. 766 on Inquiry Card—Page 17→

HILLS AND VALLEYS MAKE BETTER STEEL DRUMS



GREATLY MAGNIFIED, this photo shows Rheem steel after shot-blasting. *Physically* cleaned and roughened, it offers a better gripping surface for applied linings or coatings.

THIS SHOT *is the secret of Rheem's longer lasting steel drums*

Look at the insert above. It shows you the hills and valleys in a piece of shot-blasted steel . . . the steel Rheem uses to give you a better steel drum.

This shot-blasting—the first and most important step in preparing the steel for forming—*physically* cleans and roughens. Millions of carefully sized high-carbon steel pellets bombard both sides of each steel sheet . . . blasting away scale . . . roughening the surface . . . carefully preparing the metal to receive protective linings or exterior coatings.

As a result, when we apply an interior lining or outer coating to a drum, it gets a bulldog grip on scientifically roughened steel. We get a better bond of steel and coating. You get a better drum. Also, because Rheem's shot-blasting gives the steel a "passive" surface, it retards oxidation of *uncoated* sheets.

Next time you place an order for steel containers, remember this: Rheem *physically* cleans its steel by shot-blasting before fabrication. For *any* drum—plain, lined or decorated—that means longer life.

YOU CAN RELY ON Rheem MANUFACTURING COMPANY

7600 S. Kedzie Chicago 29, Ill.

World's Largest Manufacturer of Steel Shipping Containers

RICHMOND AND SOUTH GATE, CALIF., HOUSTON, CHICAGO, NEW YORK, NEW ORLEANS, LINDEN, N. J. AND SPARROWS POINT, MD.

"It's better to ship in steel"

How to choose the Right Closure for Your Packaging Needs!



WHETHER you now use stapling, gluing, steel strapping or gummed sealing tape as a closure, Hudson has an improvement to give you more speed, more efficiency, more protection, and more economy too! Select one of these products and let us send you a free testing sample:



FAST WELD for speed in *two-strip* production line sealing*—an overall center seam protection that beats stapling, stitching or gluing. The fastest, most labor-saving closure possible. Reinforced in both directions with Fiberglas®, *Fast* Weld comes to you with an extra heavy coat of Hudson's exclusive adhesive — Supple-ized® for easier handling.

*Authorized by amended U.F.C. Rule 41



BLUE RIBBON for *speed in complete closure.* The *quality* tape with incredible speed of adhesion. Just one fast sweep of the hands and you get a tighter, more permanent seal against dust, smoke, moisture, vermin. The secret — Hudson's exclusive adhesive, Supple-ized to give you instant full depth moistening . . . quicker, better sealing.



ORANGE CORE for *low cost standard sealing.* Every inch on every roll sticks with the same bulldog grip because Hudson controls all its ingredients. Hundreds of thousands of users depend on Orange Core's consistently superior quality and have made it the world's largest selling gummed sealing tape.

Quality Products by

Hudson

PULP & PAPER CORP.

477 Madison Ave., New York 22, N. Y.

P.S. On your letterhead—write Dept. P-6 and tell us which product you want to free-test . . . Fast Weld, Blue Ribbon, or Orange Core!

For More Information Circle No. 768 on Inquiry Card—Page 17

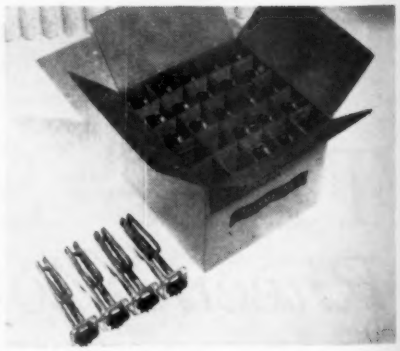
Use of Wirebound Crates Makes for 41% Inventory Reduction



At its LaPorte plant, the Coleman Co. has been able to reduce its inventory of hot water heaters by 41% by converting from closed type containers to wire bound crates. In addition, hidden shipping damage has been eliminated. Heaters used to be assembled complete to the types of burner required (gas, oil, etc.). Now they are put in wirebound crates minus burners, closed temporarily, and then reopened to install burners as orders are received.

Circle No. 303 on Inquiry Card—Page 17

Partitioned Box Cuts Packing Labor Costs



Electro-Therm Inc. of Silver Spring, Md. used to individually wrap its electric water heating elements in newspaper and ship them in bulk. Then it adopted a Hinde & Dauch partitioned corrugated box with 25 cells to hold individual heating elements. In addition to sharply reducing the amount of labor required to pack the product for shipment (each unit can be put in its cell in the carton without any wrapping), a more accurate quantity check is obtained and the product is better protected.

Circle No. 304 on Inquiry Card—Page17

"Okay...how do you pronounce it?"



Lots of people
stumble over our name.

But just so you'll know,
HINDE rhymes with "find"...
and DAUCH is pronounced "dowk."
And any way you say it,
it stands for quality in
corrugated boxes.



HINDE & DAUCH

AUTHORITY ON PACKAGING • SANDUSKY, OHIO
12 FACTORIES • 40 SALES OFFICES

For More Information Circle No. 769 on Inquiry Card—Page 17



"One Bunn Machine keeps up with our fastest folder,"

says Charles Jedd, Supt. of HILLISON & ETTEN, Chicago

"We have been using Bunn Tying Machines for over 15 years . . . to tie all kinds of printed materials. One machine and one operator can *easily* keep up with our fastest folders and trimmers," says Mr. Jedd, superintendent of this well-known Chicago printer of quality work.

Many firms, such as meat packers, mail order houses, business offices, nurseries, and hundreds of others have found that Bunn Tying Machines are as much as *10 times faster* than costly hand tyers.

Here are some other features: automatic adjustment to all shapes and sizes . . . correct tension in every tie . . . every knot is slip-proof, tamper-proof . . . no waste of twine . . . fatigue-less operation . . . easily moved to break production bottlenecks . . . no training needed to operate.

Almost anything which can be tied by hand . . . can be tied faster, better and more economically with a Bunn Tying Machine.

BUNN

B. H. BUNN Co., Dept. PU-65
7605 Vincennes Ave.
Chicago 20, Ill.



GET THE WHOLE STORY

Send today for this fact-packed booklet, which illustrates the many advantages of Bunn Tying Machines. There is no obligation.

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B. H. Bunn Co., Dept. PU-65
760? Vincennes Ave., Chicago 20, Ill.

Please send me a copy of your free booklet which shows how Bunn Machines can save time and money in my business.

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Company_____

Address_____

City_____ Zone___ State_____

For More Information Circle No. 770 on Inquiry Card—Page 17

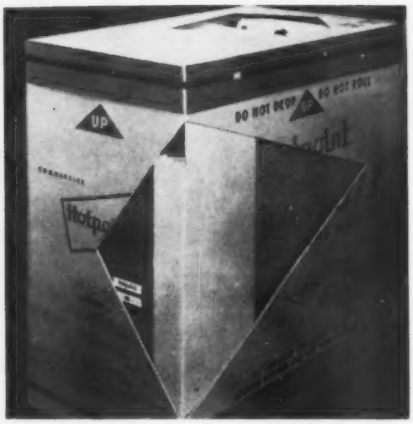
Reinforced Tape Cuts Costs of Packaging Labor



A leading paper converter switched from gummed tape package closures to reinforced Snake tape to cut packaging time and labor. Two strips of Snake tape along center seams give closure strength 35% greater than the former six-strip, all-seam sealing method utilizing unreinforced tape. With two strips necessary instead of six, closure labor time is reduced by as much as 67%. Corrugated boxes, center seam sealed with reinforced tape, will be accepted for rail shipment under new amendment to Uniform Freight Classification Rule 41.

Circle No. 305 on Inquiry Card—Page 17

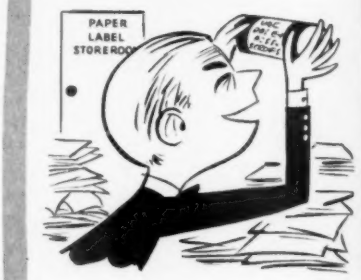
Package Labor Costs Cut 35% with Fibre Box

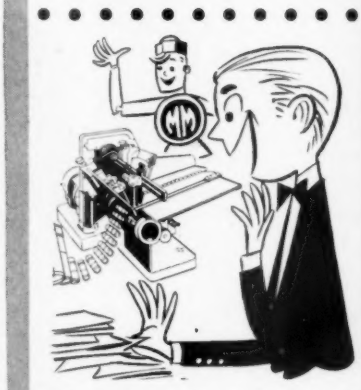


Hotpoint Co. used to ship its heavy duty fry kettles in wood-cleated containers. Recently, it changed to corrugated fibre box supplied by Stone Container Corp. of Chicago. As a result practically all claims of damage during shipping to the product have been eliminated. Freight costs have been reduced since the new package is 25 lbs. lighter. Biggest cost saving, however, is the 35% reduction of packaging labor costs possible with the new container.

Circle No. 306 on Inquiry Card—Page 17

making a
MARKED IMPROVEMENT
in PLASTIC CONTAINER MARKING







For 40-odd years now, Markem has been helping to solve marking predicaments like this—first by studying the individual needs, then recommending the right machine, type and ink for the job. We call this business of showing people how to economically mark their products, parts and packages, the "Markem Method." Right now it's working well for some 5,000 companies, from one end of industry to the other. Most likely it can help you, too—either by "solving" your marking problem, or making a worthwhile improvement or two in your present method. Write us today—Markem Machine Co., Keene 34, New Hampshire.

MARKEM
...TO MAKE YOUR MARK

For More Information Circle No. 771 on Inquiry Card—Page 17



United Air Lines first to offer all-cargo flights keeps on bringing you "firsts" in freight service!

United was the first scheduled airline to offer all-cargo flights (1940)... the first with specially-equipped "flying freight cars" (1943)... and through the years the "firsts" have kept right on coming from United Air Lines.

For example, United Air Lines now offers you Reserved Space Air Freight. It's new. It's exclusive with United in the U.S. You can reserve space for your freight shipments in advance, previous consideration having been given mail and express space needs.

Also new, are interline arrangements whereby you can ship via United Reserved Space to 84 foreign countries the world over!

For more information about United Air Freight, write for new booklet, "Industry's Flying Partner," Cargo Sales Dept. C-6, United Air Lines, 5959 S. Cicero Ave., Chicago.

More than 254 United flights daily —Air Cargo on every one



For More Information Circle No. 772 on Inquiry Card—Page 17



Here's how we

SAVE ON RAILS

BUY "GUARANTEED RELAYERS"



Handle more cars better — spend less to install and maintain with Relayers from Foster. "Open-stock" shipments from Foster warehouses, all sections 12# thru 175# — plus Switch Materials and Track Equipment items.

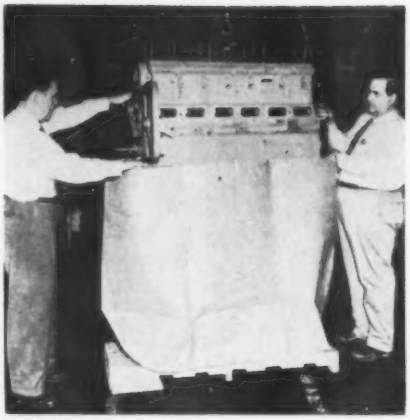
Send catalogs ☐ *Rails* ☐ *Track Equipment*
☐ *Send Free 'Track Maintenance' Book* P-4

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L. B. FOSTER CO.
PITTSBURGH 30 NEW YORK 7
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For More Information Circle No. 773 on Inquiry Card—Page 17

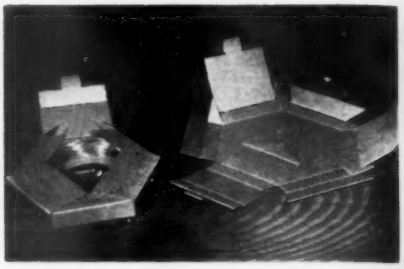
Rust Preventive Packing Cuts Handling Costs 58%



Prior to the new VPI packaging method, diesel engine blocks were oil dipped for protection against rust. In a given period, 22,943 lb. of engine blocks and parts were shipped per man. Use of Angier VPI bags eliminates slushing preservatives and simplifies packaging procedure. Now 54,615 lb. of the same equipment are shipped per man and more economical and cleaner packaging is afforded with VPI. The custom-made VPI bag is simply opened, the block is lowered inside, and the bag is sealed. Another advantage of VPI is greater convenience (and lower cost) for the customer since no degreasing is required.

Circle No. 307 on Inquiry Card—Page 17

Special Box Cuts Damage Claims and Packing Time



National Lead Company used to hand wrap coils of malleable wire for shipment. However, working with the Hinde & Dauch Co., it successfully developed a hexagonal "doughnut" fibre box to ship the wire. As a result packing labor cost has been cut substantially and shipments returned because of kinks and dents have been materially reduced.

Circle No. 308 on Inquiry Card—Page 17



REDUCE PACKAGING COSTS

USE
JIFFY PADDED SHIPPING BAGS
FOR
SEMI-FRAGILE AND NON-FRAGILE ITEMS

- Jiffy Bags Save Packing Time—as much as 76%!
- Jiffy Bags Cut Labor Costs—Insert item into bag—staple or tape. Ready for shipment!
- Jiffy Bags Prevent Damage to Shipments. Reduce claims —create good-will.
- Jiffy Bags Replace Boxes, Wrapping Paper and Dunnage.
- Jiffy Bags are Inexpensive.

Jiffy

Distributors in Principal Cities
Samples and Prices Gladly Furnished

JIFFY MANUFACTURING COMPANY
371 FLORENCE AVE. HILLSIDE, N. J.

For More Information Circle No. 774 on Inquiry Card—Page 17

Two Corrugated Packing Pieces Replace Seven Die-Cut Pieces



Acme Visible Records has reduced packing time, simplified inventory and saved money by using Hinde & Dauch corrugated Plypak to protect various filing and indexing devices during shipment. These products are cushioned in 2 pieces of Plypak and shipped in a regular slotted box. This replaces a method in which 7 special die cut pieces were used to pack the devices in the same kind of box.

CIRCLE NO. 309 ON INQUIRY CARD—PAGE 17

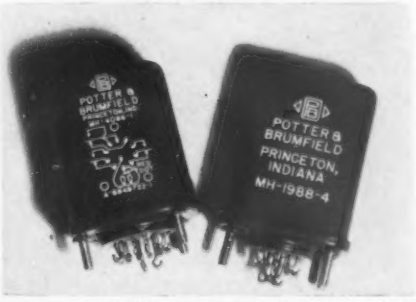
Tape Replaces Wooden Plugs, Costs Reduced



Transworld Airlines needed an effective way to seal the openings of aircraft engines during overhaul. Unless they were sealed, openings like carburetor ports could permit dirt to enter and damage the engine. The old way of sealing was with wooden plugs. They were expensive, difficult to store, and weren't always effective. The new way to seal is with Polyken tape. It is more effective, costs less, and takes less labor to apply.

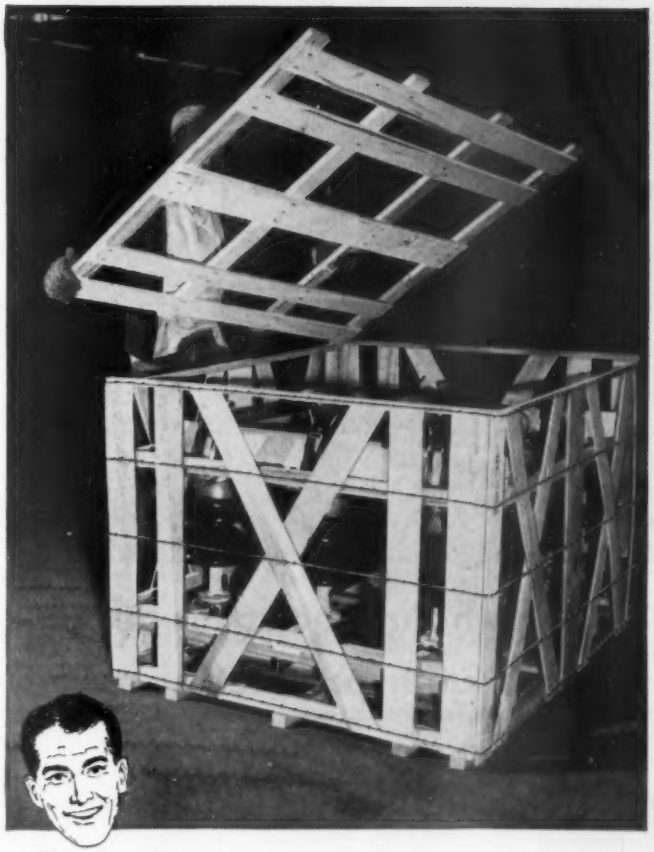
CIRCLE NO. 310 ON INQUIRY CARD—PAGE 17

Silk Screening Cuts Labeling Cost 10-30%



Potter & Brumfield, electric relay manufacturers, were faced with a cost problem in labeling because of the various information that was necessary on the product. Decal, rubber stamps, and general labels were eliminated by putting all necessary information on a silk screen. Depending on the complexity of the particular label, minimum savings of 10 and up to 30% have been effected.

CIRCLE NO. 311 ON INQUIRY CARD—PAGE 17



Put these General Box advantages to work for you

General Box offers your company design, testing and production facilities that pay off in improved product protection and important packing and shipping savings as soon as General-engineered wirebounds go into use. Here are three of the reasons why:

Engineered Designs—Engineers with years of training and practical experience develop and test new container designs in General's completely equipped laboratories. You get a container that's tailored for the job.

Quality Production—The latest machinery, finest materials and constant quality control methods insure low-cost production with the precision that means easy box assembly and maximum strength.

Dependable Delivery—Eleven strategically located plants to get the right containers to you at the right time in the quantities your schedule calls for.

Let us send a man. No obligation. Illustrated literature on wirebounds or pallet boxes mailed on request.

Factories: Cincinnati; Denville, N. J.; East St. Louis; Detroit; Kansas City; Louisville; Milwaukee; Sheboygan; Winchendon, Mass.; General Box Company of Mississippi, Meridian, Miss.; Continental Box Company, Inc., Houston.

General Box

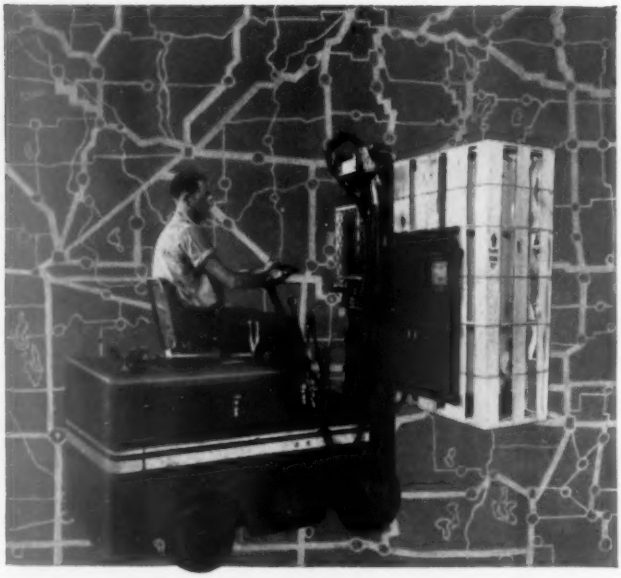
1839 Miner Street, Des Plaines, Illinois

★ ★ ★ ★ ★

ENGINEERED CONTAINERS FOR EVERY SHIPPING NEED

• Wirebound Crates and Boxes • Generalift Pallet Boxes • Corrugated Fiber Boxes • Cleated Corrugated and Watkins-Type Boxes • Stitched Panel Crates • All-bound Boxes

For More Information Circle No. 775 on Inquiry Card—Page 17



Your handling goes modern when your product goes

WIREBOUND!

Lower Total Cost

Better Stacking

Faster Assembly

Reduced Weight

It's easy to see how you put new life in your handling operation when you put your product in a Wirebound. For with Wirebound's unique construction of strong steel wire and light, tough wood—your product gets the best in protection while you get a container that adapts to an infinite variety of handling procedures. Just how well Wirebounds suit up-to-date handling methods is shown above where a heater manufacturer moves Wirebounds with a finger-lift truck to achieve easier, speedier storage in really close quarters. Remember—no matter what you handle or how you handle it . . . you'll handle it better when it's a Wirebound box, crate or pallet box.

Wirebound BOXES & CRATES

MAIL THIS COUPON NOW!

WIREBOUND BOX MANUFACTURERS ASSOCIATION
Room 1153 327 South LaSalle Street, Chicago, Illinois

☐ Have a sales engineer give me the whole story
☐ Send me a copy of "What to Expect from Wirebounds"

Name_____

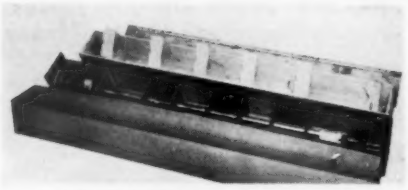
Firm Name_____

Address_____

City, Zone and State_____

For More Information Circle No. 776 on Inquiry Card—Page 17

Corrugated Pack Cuts Container Cost 50%



Penberthy Injector Division of Buffalo-Eclipse Corp. used to build up its own wooden boxes for shipping its product. However, this operation was shut down after successful experimentation with purchased corrugated boxes developed by Robert Gair Co. Inc. of Cleveland. The new boxes cost 50% less and reduced unit weight (and this affects freight bills) by 42 lbs.

CIRCLE NO. 312 ON INQUIRY CARD—PAGE 17

Steel Strapping Speeds Lumber Loading, Cuts Costs



Lybarger Lumber Co. of Cleveland, O., used to load its trucks with a conventional chain and binder attachment. The result was slow and expensive handling both for Lybarger and its customers. Now it uses a Brainard steel strapping system. Large unit loads are banded before shipment to customers with steel strapping. Small packages of finished lumber are bundled with strapping tape.

CIRCLE NO. 313 ON INQUIRY CARD—PAGE 17

Packaging Costs Reduced 50%, Sales Appeal Increased



Redesign of a carton used to package a product made by Riswell Company reduced packaging costs 50%, and increased dealer and consumer acceptance of the item. The product was formerly packaged in a 2-piece set-up box printed in one color, which was bulky and created a storage problem. A new box, designed by Martin J. Ferguson and made by Manufacturers Box Co., is a one-piece carton delivered flat to the factory. Instructions formerly inserted by hand are printed in condensed form on back of the box.

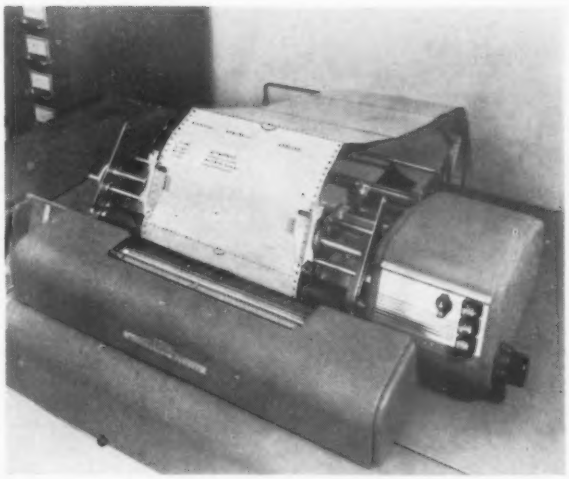
CIRCLE NO. 314 ON INQUIRY CARD—PAGE 17



Order-Invoices Produced 25% Faster With Designed System

A mounting volume of orders was posing a problem for the Hagan Corp., Pittsburgh. It was solved by a paperwork simplification job which increased the rate of producing order-invoices on electric typewriters at least 25%. First the "source document" was standardized; data appearing in the sequence to be typed on the invoice. The order-invoice form was designed to minimize "non-productive" elements in typing (75% of typing is in keystrokes now). Standard Register's continuous forms, registrator platen and automatic line finder eliminate forms handling, also.

CIRCLE NO. 315 ON INQUIRY CARD—PAGE 17



New Factory Jacket Saves $6000 In Clerical Costs

Sciaky Bros., Inc., Chicago, manufacturers of electric resistance welding machines, are using a new type factory jacket (or traveller) to carry instructions, bills of materials, inspection approvals, etc. Uarco, Inc., Convelopes (continuous form envelopes) are mechanically produced as a by-product of their production scheduling, eliminating clerical hours formerly spent in preparing jackets. Actual savings in labor the first year amounted to more than $6000.

CIRCLE NO. 316 ON INQUIRY CARD—PAGE 17



Microfilming Saves $5000 Per Year

With sales and installment accounts growing, Saladmaster, Inc., Dallas, found a growing need for more and more clerical help. Instead they turned to Burroughs' microfilming and found a simpler filing system plus a reduction in the number of employees needed, a saving of $5000. One girl now does the work of many. The filming has also eliminated two invoice copies and the pen and ink cash receipts journal. Thus, they were also able to save on billing forms and introduce a more efficient filing system, cutting out many filing cabinets and filing space.

CIRCLE NO. 317 ON INQUIRY CARD—PAGE 17



Filing Cabinets Give Ready Reference In 1/3 The Time

The Revenues Dept. of the Grand Trunk Western Railroad, Detroit, had about 1600 binders on tariffs and their supplements stored on wooden shelves 60′ long and 11′ high. Removed from their binders, the tariffs' thickness was reduced from 3¼″ to 2½″ and housed in 40 General Fireproofing Company Super-Filers. Maximum height was reduced from 11′ to 57″, foot travel cut from 60′ to 38½′, and reference to the tariffs can be made in 1/3 the time. In addition, there are still 1½ cabinets left for expansion.

CIRCLE NO. 318 ON INQUIRY CARD—PAGE 17



Xerography Saves $8000 Plus 7872 Hours' Waiting Time

In addition to saving $8000 a year, Taylor Instrument Co., Rochester, N. Y., has saved 7872 hours of "waiting for plates" time by the use of xerography for its paperwork duplicating operations. Price lists for an inventory of 30,000 different components, sales bulletins, factory office forms, confidential reports, etc., are all copied quickly and economically by xerography onto paper masters for multiple runoff on offset duplicators.

CIRCLE NO. 319 ON INQUIRY CARD—PAGE 17



No Journal, Voucher Registers With Voucher Check System

A Speediset voucher check system of Moore Business Forms, Inc., for Edmont Mfg. Co., Coshocton, Ohio has eliminated the extra task of writing journals and register vouchers, making clerical time previously used for this job available for other duties. One part of the voucher check is used as the check register file. The perforated, numbered stubs on the other part are detached and filed by account number until the end of the month. Unpaid invoices at the end of the month are recorded for payment the following month.

CIRCLE NO. 320 ON INQUIRY CARD—PAGE 17



Copyflex Saves $100,000 Annually; Halves Shipping Time

The DoAll Co., Des Plaines, Ill., has integrated ordering, invoices, purchasing and back ordering with its multiple invoicings into a one-writing Copyflex system based on the salesman's original transluscent order forms. By installing Bruning Copyflex machines throughout its nationwide distributors, DoAll has consolidated seven forms into one, thereby saving $100,000 annually in clerical labor and cutting shipping time in half.

CIRCLE NO. 321 ON INQUIRY CARD—PAGE 17



Punched Card System Ups Sales Appointments 100%

The tedious "hunt and peck" method of creating sales appointments on real estate listings of Town and Country Homes, Inc., Boston, was made obsolete through the development of a "Home Finder" by the Samas Punched Card Division of Underwood Corp. The machine uses punched cards to pair real estate listing with buyer demand. Information such as location of property, price, style, number of rooms, etc., are punched into the cards. The selector picks only homes the prospect is interested in. Salesmen's appointments have been upped by 100%.

CIRCLE NO. 322 ON INQUIRY CARD—PAGE 17



Fanfold Invoice System Increases Order Processing By 25%

Order-billing operations at Miller Brewing Co., Milwaukee, have been streamlined with a system using a special continuous marginal punched fanfold invoice made by Moore Business Forms, Inc. The new form, which provides positive control without a costly checking system, is written on an IBM electric accounting machine. Since adopting the system, the firm has saved over 60 hours a month, of which 20% was overtime. Also, they have been able to increase orders processed by 25%, with the same personnel and equipment.

CIRCLE NO. 323 ON INQUIRY CARD—PAGE 17



Mechanized Equipment Saves 50% in Posting, Reference Time

Mechanical reference, made possible with a Remington Rand Robot-Kardex installation, has enabled the American Recording Chart Co. to slice a full 50% from time formerly required for posting and reference to inventory control records. Holding a tight control over an inventory of at least 6,000,000 charts, the company has also been able to reduce clerical time from the equivalent of two full-time jobs to a point where the work is being comfortably handled by one person.

CIRCLE NO. 324 ON INQUIRY CARD—PAGE 17



Printing Calculator Aids In Speeding Shipments

The Snap-on Tool Corp., San Francisco, with more than 4000 tools in its line and hundreds of salesmen on the road, had been searching for a means of minimizing both salesmen's and branch office's book work. Two innovations have streamlined order filing; a special order blank, and a Remington Rand printing calculator. The new system has done away with hand-extending orders, released clerical personnel for other duties, and assured faster shipments to the field.

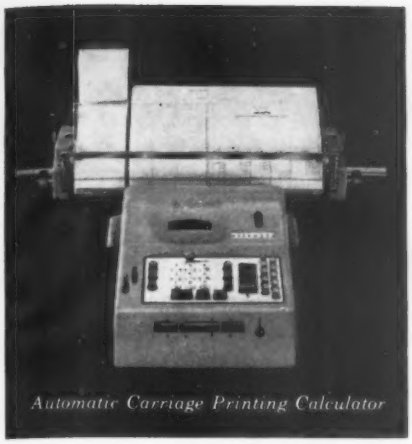
CIRCLE NO. 325 ON INQUIRY CARD—PAGE 17



Whiteprinter Saves $1000 Per Month On Billing Operation

A large, west coast retailer and wholesaler of stationary supplies was confronted with a condition of late billing that was expensive and conducive to frequent customer complaints. The problem was solved through the use of an Ozalid whiteprint machine and transluscent salesmen's order forms. Now the salesmen fill out the order blanks and send them to the central office for posting of prices and other entries. Copies are made by the Ozalid machine and distributed, immediately. Savings—$1000 per month.

CIRCLE NO. 326 ON INQUIRY CARD—PAGE 17



Automatic Carriage Printing Calculator



"Electrosumma 14" Adding Machine



"Electrosumma Duplex" Adding Machine



Unique. The Olivetti Printing Calculator, at left, the first printing calculator to have a separate multiplication keyboard, is uniquely and completely automatic. It multiplies automatically without requiring the operator to position the multiplicand; *all* mental counting is eliminated; fast short-cut multiplication is automatically used. It divides automatically; locating the decimal point is simple. This versatile machine is also a fast 10-key adding machine, with direct subtraction and automatic credit balance. Double and triple zero keys, found on no other printing calculator, and new discount key, add extra speed. It prints a complete tape record of all calculations, providing permanent proof that is quickly and easily audited. Proven in 7 years of use, the Olivetti Printing Calculator has a lower cost maintenance contract than any comparable machine. 20,000 are in use in the U.S.A. today, sold and serviced by Olivetti branch offices and by 450 dealers, in all 48 states. Have *you* investigated work-saving Olivetti machines?

olivetti



Olivetti Corporation of America
Dept. DX, 580 Fifth Avenue
New York 36, New York

Gentlemen: I'd like to know more about your Printing Calculator that makes figure-work quick, easy and automatic. Without obligating me in any way, please let me have this information as soon as possible.

Name.....

Title.....

Company.....

Street.....

City..... State.....

For More Information Circle No. 777 on Inquiry Card—Page 17

Remington Rand

BETTER BUSINESS METHODS

For Greater Profits Through Lower Costs

Six Practical Ideas for Reducing Operating Costs!

Effective purchasing of office machines, systems, equipment and supplies requires a thorough knowledge of available items . . . and recommendations to using departments as to which products are effective for specific uses. Many products can be tried out effectively in the purchasing department—and their use recommended to other departments based on proved performance within the company.

Remington Rand products are sold direct to you through trained and experienced account representatives who are experts in their field. They can often save your company time, trouble and money by making sure that items of office equipment and supplies requisitioned are best suited to their intended uses . . . also, by demonstrating the products which will best fulfill your exact requirements.

Illustrated in these pages are details of a few of the thousands of Remington Rand Products which are being used by business organizations to reduce operating costs. Ask for further details on these, or any other items in office machines, systems, equipment and supplies. Circle X1202 on the coupon for a methods manual that has been used by thousands of purchasing officials to develop more efficient, less costly methods—"Purchasing Procedures That Save Time And Money." Similar booklets with cost reducing ideas for other departments are available on request.

Noise Never Comes Between Them



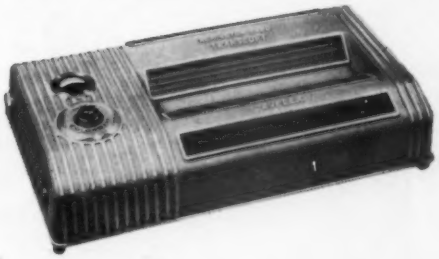
The new Remington Noiseless makes it possible for a secretary and an executive to work side by side (or for a large number of typists to work in a single office) without the disturbance of typewriter noise. Output is increased, space saved, costs cut and morale of your office staff boosted, by elimination of fatigue producing din and clatter. Circle RN8719 on the coupon for illustrated folder giving particulars on *the world's quietest typewriter*—the New Remington Noiseless.

Visible-tip Follow-up Folders Pay Off for Libbey-Owens Ford Purchasing Dept.

Each of the 4,000 open purchase orders in process at Libbey-Owens Ford Glass Company at Toledo (for its 7 manufacturing plants) is in an individual Follow-up Folder, vertically filed by vendor's name and then numerically. A movable colored signal on the visible edge, set to the proper calendar date, shows clerks at a glance which orders need attention. The company says, "The Follow-up Folders have served us well for over *ten years* at very low cost, and have helped our department to operate in the smooth and efficient manner that we like." Get full particulars on Kardlok Visible-tip Follow-up Folders with the sliding signals that lock in place—exclusive with Remington Rand. Circle LBV567.



Make Copies Right in the Purchasing Department on One Simple, Inexpensive Machine



This Transcopy Duplex produces accurate copies of any original on white or colored paper . . . one or two sides. No darkroom or running water needed. Simply place on a table and plug into any standard electrical outlet. Ideal for processing requests for bids and purchase orders . . . or may be used at a central location by all departments. Circle P344 for detailed brochure.



5-drawer Kompakt File alongside regular 4-drawer file.

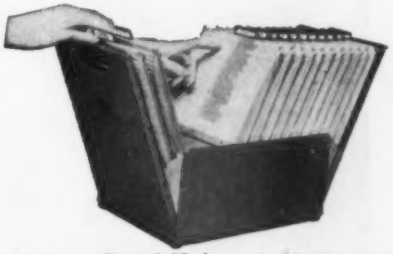
New Remington Rand Kompakt Files Save Space in many Departments

These new Kompakt Files can save up to 50% of your costly filing floor space . . . give you an *extra drawer* in every file *without adding to its overall height.* The desk-height Kompakt file has 3 letter or legal-size drawers instead of 2 . . . counter-height Kompakt has 4 instead of 3 drawers . . . 5-drawer Kompakt is no higher than the regular 4-drawer file . . . 6-drawer Kompakt is comparable to a 5-drawer file!

And Kompakt—*the file with the extra drawer*—has smoother operation . . . modern, streamlined appearance . . . greater strength, rigidity and durability! Get all the details and see how Kompakt can save you many times its original cost in savings of office space. Circle LBV692.

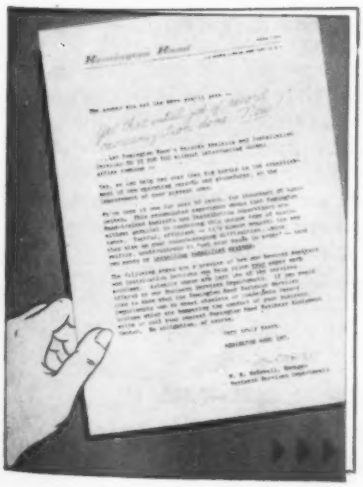
How Effective Follow-Up can Contribute to Efficiency and Economy

A company doing business with 6,000 suppliers installed the Kardex Kolect-A-Matic system. BEFORE this system was installed the purchasing agent required the help of three clerks daily in order to process all paper and book work. NOW one clerk handles all record keeping, and any record can be located in a few seconds. Further, there is a complete record of past and current experience in the purchase of every commodity item... a record by which the expenditure of every outgoing dollar can be guided. Circle X1202.



Remington Rand Kolect-A-Matic tray visibly indexed by vendor's names. Each day a quick glance at the signals set for that day reveals which pockets contain orders due for follow-up.

66% Slash in the Paperwork for Purchasing and Receipt of Supplies



Remington Rand Business Services Department is available to consult with your purchasing dept. (or any other departments of your business) with a view to simplifying operating procedures and increasing efficiency. Here's an example: Our Systems Consultants helped a firm centralize and streamline its purchasing procedures for several plants. Results included: reducing from 138 down to 47 the number of major processing steps required for purchase and receipt of an item; reducing from 64 to 38 the steps for returning an item to vendor or transferring it to another plant; a detailed manual of procedures for office and plant personnel, etc. Circle BSD489 for particulars on this service.

Remington Rand

Room 1655, 315 Fourth Ave., New York 10

Kindly circle the literature you desire:

X1202	RN8719	LBV567
P344	LBV692	BSD489

Name_____

Title_____

Firm_____

Address_____ P-10

City_____ Zone____ State_____

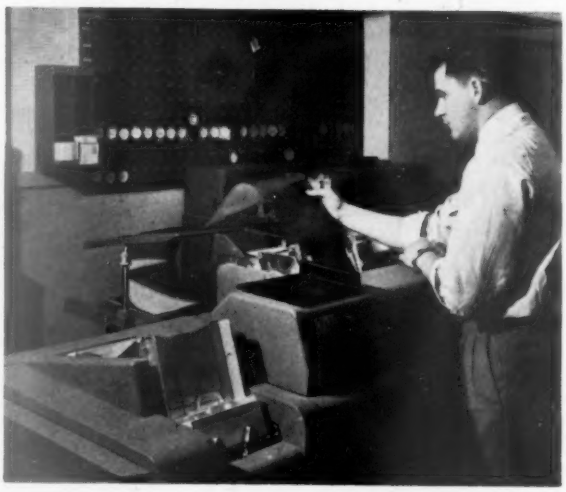
For More Information Circle No. 778 on Inquiry Card—Page 17



30 People In Area for 24 With Modular Units

A recent expansion of the Trust Department's administrative unit for personal trusts of Cincinnati's First National Bank called for the inclusion of 30 people in an area hardly sufficient to house the 24 persons then in the group. Globe-Wernicke's Techniplan modular equipment was used and conclusively showed that the 30 people could be easily accommodated with a great deal of individual working area and a high degree of comfort.

CIRCLE NO. 327 ON INQUIRY CARD—PAGE 17



Continuous Mimeo Stencils Plus Tab Ups Efficiency 50%

Use of tabulating equipment and continuous mimeograph stencils to produce policy record forms has raised office efficiency at Argonaut Insurance Exchange, San Francisco, more than 50%. Typists formerly hand typed about 50 policies and stencils containing policy information in a day. Assisted by A. B. Dick Co. the insurance firm devised a system to process both policies and stencils through tab machines. A time study showed the equivalent of 50 policies and stencils are produced in one hour and 35 minutes.

CIRCLE NO. 328 ON INQUIRY CARD—PAGE 17



Better Balanced Stock With More Accurate Control Records

Originally, the inventory control records of the Shampaine Co., St. Louis, required the attention of several people to maintain them. But, the installation of a Burroughs accounting machine made it possible for one girl to handle the work, releasing the others for use elsewhere. Also, a reduction of inventory items and a better balanced stock has been achieved due to the faster system. Many production delays and "rush" orders due to lack of parts have been eliminated with the up-to-the-minute stock on hand record now possible.

CIRCLE NO. 329 ON INQUIRY CARD—PAGE 17

REDUCE FILE ROOM RENTAL COSTS BY 20%

NOW — FOUR PEERLESS SPACE-SAVING FILE CABINETS HAVE CONTENTS CAPACITY EQUAL TO FIVE 4-DRAWER MODELS
- REQUIRE 20% LESS FLOOR SPACE



PEERLESS
5-drawer, standard height "*space saving*" file cabinets

That's right, in both letter and legal size files, you benefit from *more* filing capacity with *no change* in cabinet dimensions.

less floor space

More capacity in the same space means less file floor space. The new way to increase file room capacity, with no increase in department size . . . or save 20% on file room rental costs by reducing floor space requirements by 20%.

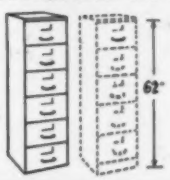
cost economies

More file contents within the operator's easy reach reflects time and cost savings. Built-in extra strength gives you unexpected long-life. That's long range cost economy.

improved efficiency

Clerical efficiency goes up. And there's no loss in drawer features . . . accommodates standard spacing guides and folders . . . with follower blocks, sway blocks or suspending guide-frames. When it comes to "space saving" with the five, or three, four and six drawer models, your Peerless Dealer is a good man to know.

SPACE SAVING CABINETS ALSO AVAILABLE IN 6-DRAWER MODEL



The 6-drawer model enables you to sell all of the features found in the 5-drawer cabinet.

In addition, the "7000 Line" offers four and three drawer models.

PEERLESS STEEL EQUIPMENT CO.
6600 Hasbrook Ave., Philadelphia 11, Pa.
New York • Chicago • Dallas • Los Angeles

For More Information Circle No. 780 on Inquiry Card—Page 17



Blueprint Location Record System Saves Engineers' Time

Previous to installing a Diebold motorized rotary file system for blueprint location records, four design engineers at a major steel company spent valuable time scouting for the blueprints. Now one clerk handles the blueprint location records along with other clerical duties. Better control and faster finding has resulted from the methodical system which keeps fingertip contact with the location of 32,000 blueprints and shop drawings.

CIRCLE NO. 333 ON INQUIRY CARD—PAGE 17



Speed Timekeeping, Cut Costs $7000 A Year

A western fibre manufacturer had employees keep separate attendance time cards and job time tickets under its old system. Under its new system, job clocks were installed which recorded attendance time on IBM cards pre-punched with employee data. Job time is recorded on the same cards. As a result, the timekeeping department saves $7000 per year in clerical costs. Other advantages: simplified employee clock use, faster machine audit of attendance and job time costs on punched card equipment.

CIRCLE NO. 334 ON INQUIRY CARD—PAGE 17



Mechanized System Cuts Order-Invoicing Time 80%

A mechanized order-invoicing system is saving nearly 80% of the time previously spent on slower methods for Olin Mathieson Chemical Corp., Baltimore. The Commercial Controls Corporation system starts with a punched paper tape that types sales order data automatically. As an automatic by-product, a tape is punched for wire-transmitting the order to the manufacturing plant and for later use in typing invoices. Invoicing produces a second by-product tape for producing tab card sales analyses.

CIRCLE NO. 335 ON INQUIRY CARD—PAGE 17



*Live keyboard** with keytouch adjustable to each operator!

Saves up to 50% hand motion —and effort!

Never before have so many time-and-effort saving features been placed on an adding machine.

Every key operates the motor — so you can now *forget the motor bar.* No more back-and-forth hand motion from keys to motor bar.

And keys are instantly adjustable to *each* operator's touch! No wonder operators are so enthusiastic about it. They do their work faster — and with up to *50% less effort.* New operating advantages! New quietness! New beauty!

"Live" Keyboard with Adjustable Keytouch *plus* 8 other time-saving features combined only on the National Adding Machine: Automatic Clear Signal . . . Subtractions in red . . . Automatic Credit Balance, in red . . . Automatic space-up of tape when total prints . . . Large Answer Dials . . . Easy-touch Key Action . . . Full-Visible Keyboard with Automatic Ciphers . . . Rugged-Duty Construction.

A National "De Luxe" Adding Machine is an investment that quickly pays for itself with the time-and-effort it saves, and then continues savings as added yearly profit.

One hour a day saved with this remarkable new National will, in the average office, repay 100% a year on the investment. See a demonstration, today, on your own work. Call the nearest National branch office or National dealer.

*TRADE MARK REG. U. S. PAT. OFF.

National

ADDING MACHINES • CASH REGISTERS
ACCOUNTING MACHINES

THE NATIONAL CASH REGISTER COMPANY, Dayton 9, Ohio

977 OFFICES IN 94 COUNTRIES

For More Information Circle No. 781 on Inquiry Card—Page 17



Photocopying Machine Cuts Reproduction Time By 50%

Reproducing weave patterns was an expensive and time-consuming proposition for J. P. Stevens Co. Because the weaving mills needed the patterns for setting up the looms, Stevens installed a Copease Corporation's photocopying machine to make the exact reproduction. As a result, they found the machine cut in half the amount of time normally needed to reproduce the complex patterns. In addition, the actual reproduction process could be handled by anyone in the office, requiring no special training.

CIRCLE NO. 336 ON INQUIRY CARD—PAGE 17



Paper Assembling Time Cut Up To 88% With Tandem Collator

Old-fashioned hand methods, requiring 3 or 4 people, used to be the method used by Allied Purchasing Corp., New York, to gather duplicated sheets into sets. With the installation of a Thomas tandem model collator, one operator now handles an equivalent volume of work. Actual time savings are as high as 88% on special voluminous projects, with 33% being the average for the normal collating job. In addition, errors such as omissions, doubles, etc., have been eliminated.

CIRCLE NO. 337 ON INQUIRY CARD—PAGE 17



Automatic Calculators Up Figure Work Volume By 30%

At Star Steel Supply Co., Detroit, figure work volume has been increased 30% over a year ago without an increase in office personnel. Using Friden fully automatic calculators to mechanize their routine figuring, Star Steel has been able to cut tax calculation time by 50% over old type manual methods. In addition, replacing previous inept and complex invoicing figure work methods, the company claims to save an estimated one day in three in the handling of that office routine.

CIRCLE NO. 338 ON INQUIRY CARD—PAGE 17

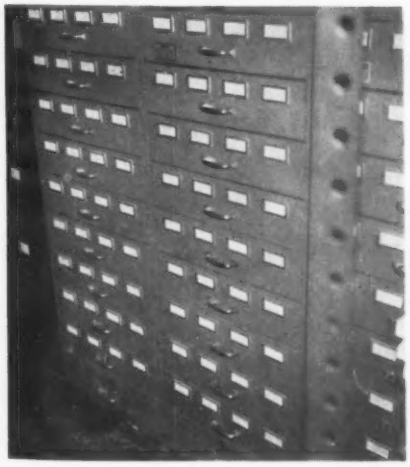
50 Hours of Paperwork Saved a Week With Handwritten Form



A single operation of hand writing a form now takes the place of two forms—one typed from the other—at Hassco, Inc., Denver. Using a Standard Register Co. installation, the original copy of a 5-part record written on a Carbomatic Register for "will call" and special warehouse delivery orders, now serves as an invoice mailed to the customer. Part 2 is the accounts receivable copy. Eliminating the typing of the invoices has resulted in a saving of 50 hours of paperwork a week.

Circle No. 339 on Inquiry Card—Page 17

Microfilming Records Reclaim 3000 Sq. Ft. of Filing Space



Preservation of vital records was a serious problem for the Square D Co., Detroit. Investigation showed that microfilming would serve a two-fold purpose. In addition to protecting the important records, more than 3000 sq. ft. of valuable space occupied by files containing material to be filmed were reclaimed. In addition, using Remington Rand's Business Services Department, Square D used a trained operator and equipment from outside, rather than tie down their own personnel.

Circle No. 340 on Inquiry Card—Page 17

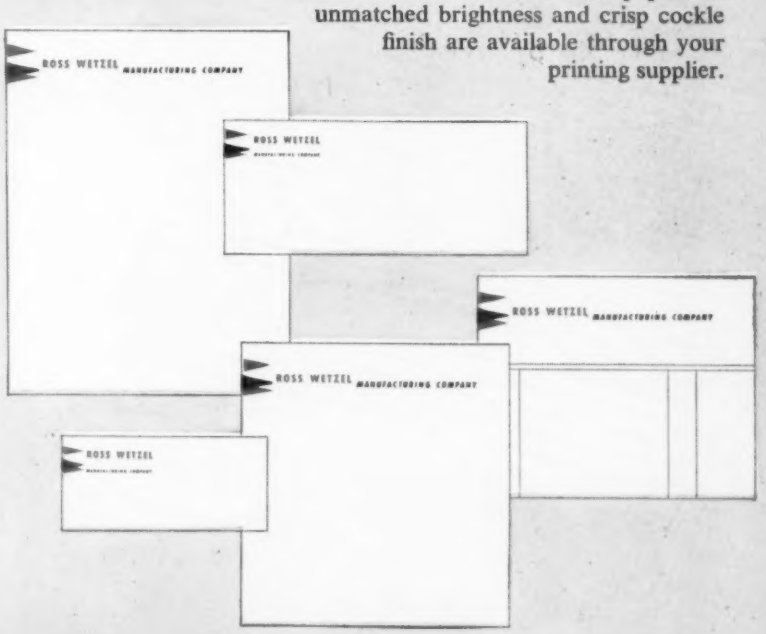


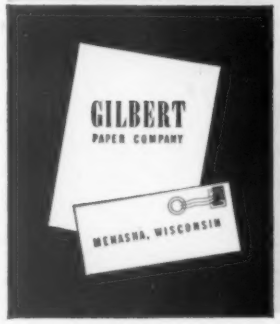
Matched Business Stationery

gets more attention, too!

Make your business correspondence "sing" with a smartly designed heading against a background of crisp, sparkling Gilbert new cotton fibre paper. A continuity of this quality impression carried throughout all of your business correspondence forms will go a long way toward telling your customers that yours is a well organized and efficient organization.

Gilbert new cotton fibre bond papers of unmatched brightness and crisp cockle finish are available through your printing supplier.





Gilbert

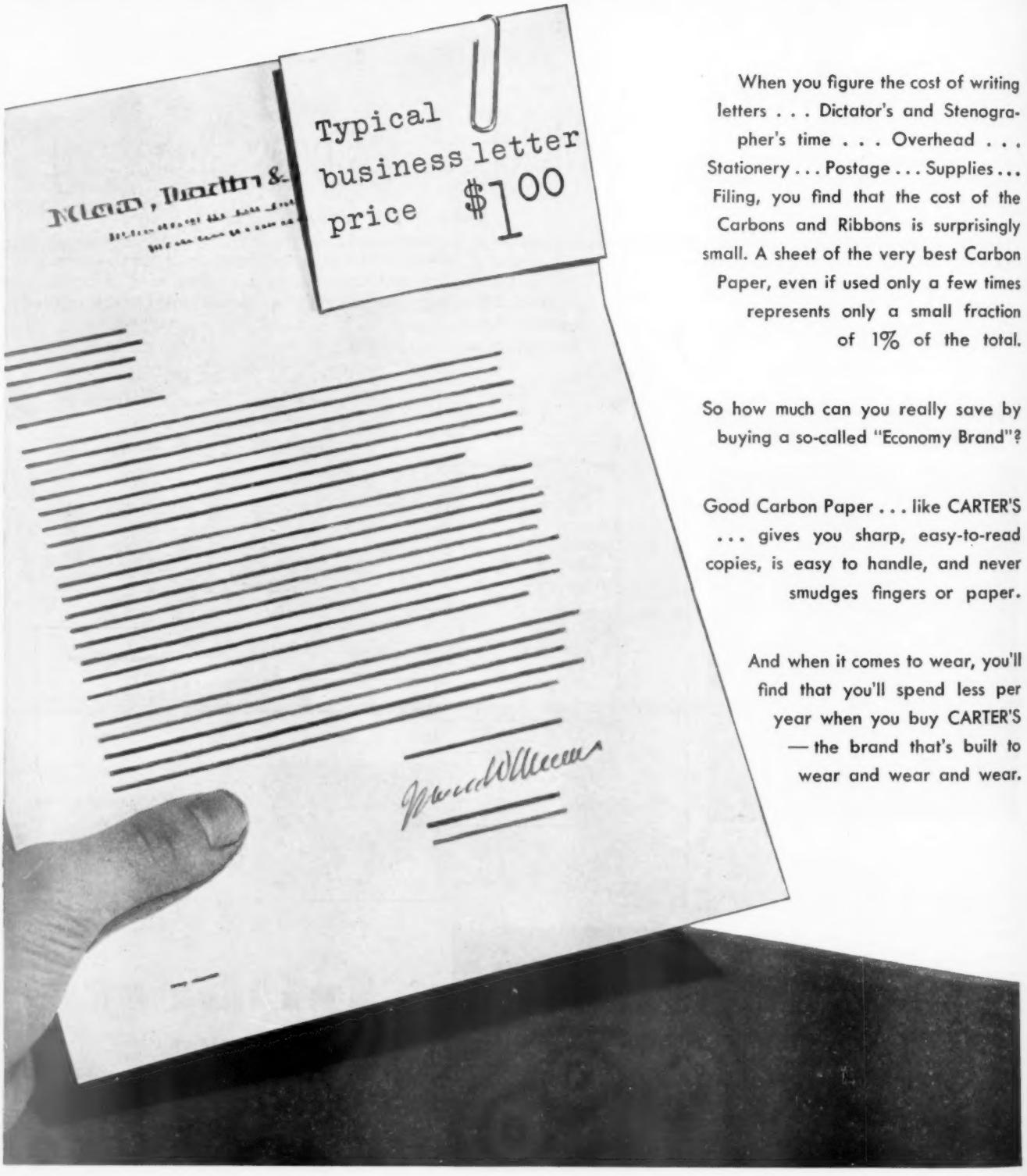
BOND PAPERS

Lancaster... Radiance... Resource... Gilbert

For More Information Circle No. 782 on Inquiry Card—Page 17

IN CARBON PAPER

The Best is Least Expensive in the Long Run



When you figure the cost of writing letters . . . Dictator's and Stenographer's time . . . Overhead . . . Stationery . . . Postage . . . Supplies . . . Filing, you find that the cost of the Carbons and Ribbons is surprisingly small. A sheet of the very best Carbon Paper, even if used only a few times represents only a small fraction of 1% of the total.

So how much can you really save by buying a so-called "Economy Brand"?

Good Carbon Paper . . . like CARTER'S . . . gives you sharp, easy-to-read copies, is easy to handle, and never smudges fingers or paper.

And when it comes to wear, you'll find that you'll spend less per year when you buy CARTER'S — the brand that's built to wear and wear and wear.

and that means Carter's

When you see CARTER'S Carbons and Ribbons displayed in a Stationery or Office Equipment Store, you can be pretty sure that the owner offers the very highest quality in everything he sells.

Look for these fine CARTER Carbons. Whichever you buy, you'll be right, because all are famous for performance and wear . . . all are made by specialists with nearly a century of experience in making fine Office Supplies.

Be Smarter . . . Buy Carter's



Call your local Stationer or Office Outfitter

THE CARTER'S INK COMPANY

CAMBRIDGE 42, BOSTON, MASSACHUSETTS

For More Information Circle No. 783 on Inquiry Card—Page 17

Sparkling Color with a feather touch



Colorbrite

another of the more than 3,000 EBERHARD FABER products people rely on!

In 26 brilliant colors. Colorbrite is preferred by business people because it leaves a vivid trail of color at a mere feather touch. Writes as smoothly as a black lead pencil. Takes a fine, sharp, long-lasting point. Ideal for charts, figures, graphs and forms. *Waterproof—smearproof—fadeproof—permanent!*

Trademarks Reg. U. S. Pat. Off.

Since 1849

EBERHARD FABER *puts its quality in writing*

NEW YORK • TORONTO

For More Information Circle No. 784 on Inquiry Card—Page 17

Photocopying Machine Speeds Paperwork in 33 Plants



Accompanying the technical growth of Harbison-Walker Refractories has been a tremendous increase in paperwork necessary to coordinate working of its 33 plants. Since 1951, a Haloid Foto-Flo Model C, photocopying machine has been helping to speed the flow of paperwork and minimize the need for additional personnel. Foto-Flo copies nearly all the large volume of clerical work with its photographic accuracy, eliminating the slow job of retyping and proofreading.

Circle No. 341 on Inquiry Card—Page 17

Voucher Checks and Fast Tab Machines Speed Payroll Work



A continuous, interfold, marginal punched payroll check, designed and made by Moore Business Forms, Inc., is the heart of a new system used by Skil Corp., Chicago. Data cards, prepared from time cards, are fed into a multiplier for the automatic computing of pay and deductions. Then they are run through an IBM accounting machine which automatically prints the checks in continuous strips. They

NEW Master Paper for Direct Copying Machines

*gives you the **clearest, sharpest** copies yet!*



EAGLE-A TRANSLUCENT BOND

Ideal master paper for Bruning, Ozalid, Pease and other direct-print machines. With Eagle-A Translucent Bond as your original sheet, you can get better copying results every time. The *improved* translucency of this new master paper gives you *cleaner, unclouded* copies of records and forms.

High in quality, low in cost! Made of selected fibers, Eagle-A Translucent Bond has a smooth surface excellent for writing, typing or printing . . . and strong durability. You'll want to test its quality, compare its low cost. Available through Eagle-A distributors.

By the makers of Coupon Bond and other Eagle-A Business Papers

free test packet

Clip this coupon to your letterhead

AMERICAN WRITING PAPER CORPORATION
HOLYOKE, MASS., DEPT. P

Send FREE *packet of Eagle-A Translucent Bond with printed samples and blank test sheets:*

NAME_____

TITLE_____

For More Information Circle No. 785 on Inquiry Card—Page 17

are also signed and detached automatically. The entire operation is fast and accurate and assures delivery of checks to employees with a minimum of delay.

Circle No. 342 on Inquiry Card—Page 17

Transfer Files Save Time In "Semi-Active' Reference



When the Industrial Training Institute of Chicago needed to transfer some 5600 standard correspondence folders from an active to semi-active status, they were faced with the problems of limited space, protection, accessibility and economy. An installation of 450 Stax-On-Steel transfer files of Bankers Box Co. answered their need. The unique steel frame around the cardboard containers made it possible to build stacks six high and still maintain accessibility.

Circle No. 343 on Inquiry Card—Page 17

Extra Help; Overtime Pay Avoided with Accounting Machine



Under the old, manual method, the W. T. Smith Lumber Co., Chapman, Ala., had to have extra help at the end of every payday period in order to prepare payrolls for its 850 to 1000 people. With the installation of the latest Remington Rand Accounting Machine, the Smith firm has been able to abandon that procedure. With mechanized accounting, the regular staff handles the entire operation within regular working hours.

Circle No. 344 on Inquiry Card—Page 17



How a Baltimore Business Form keeps them selling

AT ABERCROMBIE & FITCH CO. NEW YORK CITY

Over the years, Abercrombie & Fitch Co., famous New York sports specialty store, has worked closely with Baltimore Business Forms with one purpose paramount: improving the store's salesbooks to reduce time consumed in filling them out, and to give the store's salespeople more time for actual *selling.*

First improvement, made some time ago, was to redesign sales checks so that printing runs across the greatest dimension—eliminating the problem of filing tall, narrow slips. This has been further improved by the use of NCR paper, which permits writing copies *without the use of carbon!* Hands don't get smudged; no time is lost interleaving carbons—the salesperson completes the sales check more quickly and gets to the next customer sooner.

What's the next improvement? That's hard to say, right now. But it's a cinch that Baltimore Business Forms will think of something! (Chances are, we can think of something to help *your* forms problem, too. Often one suggestion from us can save literally thousands of dollars. Use the coupon below to write us *today;* there's no obligation, of course.)

BALTIMORE BUSINESS FORMS

Saving time and reducing costs in business and industry

The Baltimore Salesbook Company

The Baltimore Salesbook Company, 3142 Frederick Avenue, Baltimore 29, Md.
We are interested in seeing samples of Baltimore Business Forms.

Name_____

Company_____

Type of Business_____

Address_____

City_____ Zone_____ State_____

For More Information Circle No. 786 on Inquiry Card—Page 17

SOLUTION!

When Your Budget Demands LOW COST
Yet Your Office Requires QUALITY!

New

HARTER 26
POSTURE CHAIR



Only
$26.90
Slightly higher in South and West

Along with low price, the Harter 26 gives you a wealth of style, comfort and dependability. *There is no more serviceable stenographic posture chair at any price.* Base is formed and welded into one sturdy piece. Easy, accurate chair adjustments are made by three handwheels. No flimsy adjustments here! Seat has the comfort of foam rubber. Upholsteries and finishes are the finest. At $26.90, the Harter 26 is your solution to today's need for both low price and high quality.

HARTER
POSTURE CHAIRS

HARTER CORPORATION, 629 Prairie Street, Sturgis, Michigan
Send me literature on the 26 Chair and include name of nearest Harter dealer. Also include literature on Executive chairs ☐, Reception Room and Conference Room chairs ☐.

Name_____

Address_____

City_____ State_____

For More Information Circle No. 787 on Inquiry Card—Page 17

Production Order Lag Dropped More Than 80%

Grumman Aircraft Engineering Corp. has shifted production parts orders from a manual typing operation to a punched card tab system, printing directly on continuous Colitho offset duplicating plates, made by Columbia Ribbon and Carbon Mfg. Co., Inc. Work load is more than double wartime peak, yet staff increase is only 20%. In addition, lag time has been cut from 6 months to 1 month.

Circle No. 345 on Inquiry Card—Page 17

Invoice Copy Speeds Payment; Stops Loss of Discounts



Due to the multiple handling of some 15,000 invoices a month, a leading West Coast group of department stores found costly delays in the receipt of the invoices by accounts payable, with a loss in discounts, etc. Now, as soon as each invoice is received, it is photocopied on a Peerless Photo Products' Dri-Stat and sent immediately to accounts payable. The copy is charged to a suspense account and held in file, while the original goes to the buyer, receiving and marketing, and finally accounts payable.

Circle No. 346 on Inquiry Card—Page 17

Order-Invoice Typing Time Down by 80%

Schlage Lock Co., San Francisco, got around a cluttered order-invoicing system with an efficient method using a snap-out form built around paper off set duplicating plates made by Columbia Ribbon and Carbon Mfg. Co. Using the Colitho paper plates has reduced typing time by 80%. In addition, Schlage points to fewer clerical errors and the near elimination of common transcription mistakes.

Circle No. 347 on Inquiry Card—Page 17

New Form, Electric Typewriter Up Purchase Order Output 75%



Southwest Airmotive Co., Dallas, found an administrative problem in a heavy workload in the purchasing department, revolving around 7000 purchase orders worth about $2,000,000 a year. With the help of Remington Rand Inc., the firm redesigned its P.O. to list 6 items rather than the previous 15. Adding electric typewriters to the job improved the system. Now an operator turns out 75% more orders. In terms of actual performance, using the new system means that typing previously needing a full eight-hour day is now done in an average of 3 hours.

Circle No. 348 on Inquiry Card—Page 17

Tally-On-Top System Controls Records on Reusable Containers



The Tally-on-Top system of Moore Business Forms, Inc., the handwritten equivalent of the accounting machine, is used at the University of Rochester for the control of reusable containers. Needing a system to pinpoint the status of returnable containers used in the experimental labs, the university installed the system. It provides all records—a tally sheet receiving register and a 4-part unit tag set—in one writing. The tag sets, in prenumbered 4-color parts, give copies for the container, master file, shipping file and follow-up.

Circle No. 349 on Inquiry Card—Page 17



You can't go wrong on this guaranteed* desk set . . . with its giant ink fountain-base that automatically fills the pen and keeps it ready to write a full page or more whenever you take it from its socket.

CHOOSE THE RIGHT POINT FOR THE WAY YOU WRITE...BY NUMBER

Fine writing
2556
Bookkeeping
2550
Medium stub
9314M
carbon copies
(Also public counter use)
9460
Extra Fine
9550
General writing
2668

*** 30-DAY MONEY-BACK TRIAL OFFER**

Your regular dealer will be glad to let you try one of these fine Model 444, Self-Filling Desk Pens on your own desk for 30 days with the understanding you can return it for a full refund if you don't agree it's the best you've ever used.

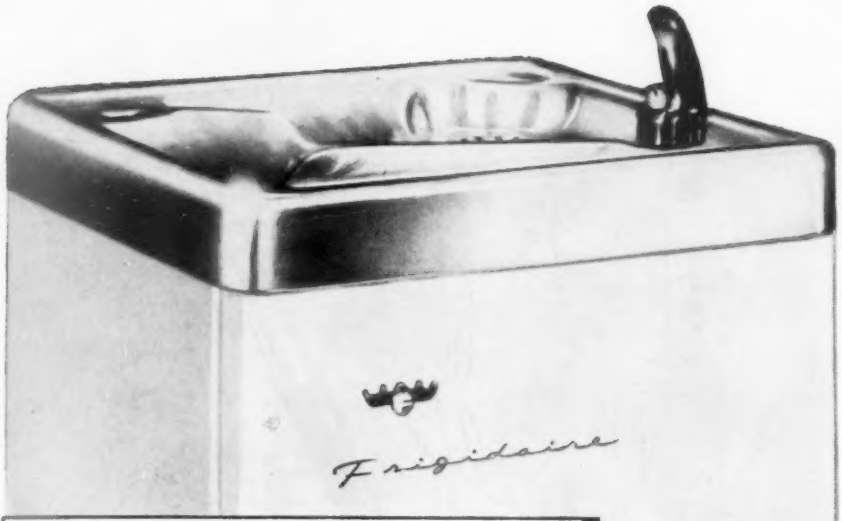
Esterbrook® DESK PEN SETS

THE ESTERBROOK PEN COMPANY, CAMDEN 1, NEW JERSEY

The Esterbrook Pen Company of Canada, Ltd., 92 Fleet Street, East, Toronto, Ontario

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For More Information Circle No. 788 on Inquiry Card—Page 17



New Frigidaire Water Coolers

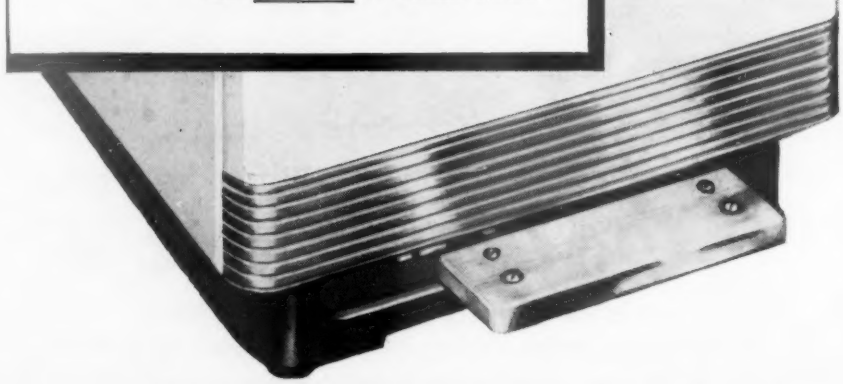
Cool water for pennies a day— the trouble-free way

Cold water flows in instant response to the all-electric Toe-touch Pedal. Flash-O-Matic principle wastes no water — wastes no electricity. Magic Action Bubbler never fades or surges — built-in automatic regulator holds uniform stream height even when the water pressure varies from 25 to 150 pounds. Gleaming stainless steel top with exclusive Splash-proof basin.

Two bottle-type coolers are also available — one model with refrigerated compartment provides two Quickube Ice Trays plus room for quart bottles or 36 soft drinks. And Frigidaire's complete water cooler line includes a new "explosion-proof" model for use in hazardous areas. All are powered by the famous Frigidaire Meter-Miser Compressor. Call your Frigidaire Commercial Dealer or write: Frigidaire, Dayton 1, Ohio. In Canada, Toronto 13, Ontario.

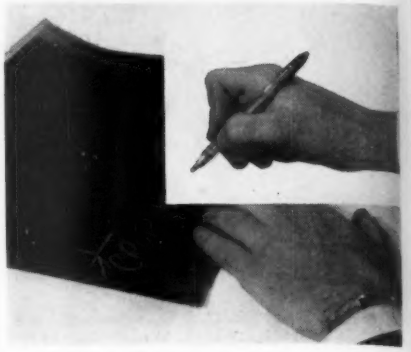
Frigidaire Water Coolers

BUILT AND BACKED BY GENERAL MOTORS



For More Information Circle No. 789 on Inquiry Card—Page 17

Colored Marking Pencils Simplify Inventory Records



The W. T. Grant Co., New York, uses a color coding method for keeping their vast inventories in order. All incoming merchandise is marked, in color, with a mechanical marking pencil, with the color being changed every 6 months. A four color sequence provides a 2 year control. Thus, all merchandise is easily identified as to age when inventory is taken by the color markings. Eberhard Faber "Marker" pencils are used because they will color any material, yet will not scratch.

Circle No. 350 on Inquiry Card—Page 17

Time Clock System Helps Speed Air Lines' Traffic



An adaptation of the old time clock is providing Pan American World Airways with up-to-the-minute, and vital flight data in far less time than previously possible. Now, all information on PAA flights is coordinated with data on world flight conditions, time stamped down to the half minute by equipment of Rapidprint Time Recorders, and dispatched by teletype to interested stations. Time imprints keep a "time history" of changing weather, delays, etc., for precise information on prevailing conditions.

Circle No. 351 on Inquiry Card—Page 17

Register System Speeds Repair Service and Order Processing



A cut from 12 days to 5 in the time needed to process orders for repairs resulted from a system using Standard Register's Desk Electric Registers and a 6-part form, at Ronson Corp., Newark, N. J. Former setup needed typing of an individual invoice and envelope plus preparation of another job envelope. A factory service form, providing all needed records in one set, is now handwritten by clerk-inspectors at 8 stations along a conveyor line. The electric registers give push-button control over the forms.

Circle No. 352 on Inquiry Card—Page 17

Terminal Digit Filing Cuts Personnel Needs by 20%



The volume of daily reports in the cashier and payroll departments of the Glens Falls Insurance Co. reached a million and a half, straining the straight numerical filing system in use. A study by Remington Rand's Business Services Department showed the economical answer was a changeover to terminal digit filing. Installing a MultiSort, which makes classification of reports quick and easy, the system has enabled the firm to operate the files with a savings in personnel of more than 20%.

Circle No. 353 on Inquiry Card—Page 17

Your 10-key calculator
—portable as a briefcase!

Only $199.50



the compact **FACIT...NTK**



100% PORTABLE



100% FUNCTIONAL



100% VISIBLE

FACIT NTK is a simple, hand-operated calculator you can carry from job to job with the greatest of ease. 12 pounds of finest Swedish steel and precision workmanship in a flexible plastic travel case!

Auditors, researchers, engineers... small chains, big businesses doing field work really go for FACIT NTK. Sales prove it! Ideal for use on train or plane, and for homework.

100% visible setting, tabulating and operating control. 10 easy-working keys—all in the span of one hand. Cushioned to hush noise. Rapid, reliable, for multiplication, division, addition, subtraction. Sold and serviced in 104 countries . . . proven unsurpassed for service-free sturdiness. "On the facts, it's FACIT NTK . . ."

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FACIT, INC.
500 Fifth Ave.
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114 Sansome St.
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Pioneers in calculators since 1884

Gentlemen: Have your representative arrange a demonstration of FACIT NTK in our office. No obligation, of course.

NAME_____ TITLE_____

COMPANY_____ ADDRESS_____

CITY_____ ZONE____ STATE_____

For More Information Circle No. 790 on Inquiry Card—Page 17

Invoice Accounting Plan Saves Reference Time



Many hours spent thumbing over ledger pages for information of the status of charge customers' bills was a big problem for Shore Gas Co., Jacksonville, Fla. However, the installation of a Remington Rand SUIAP, Simplified Unit Invoice Accounting Plan, has eliminated the time consuming aspect of the job. Each customer has a ledger pocket and "posting" is done by dropping in a charge slip, or removing it when paid. Sliding signals indicate the month of last unpaid invoice. At a glance, delinquent accounts stand out.

Circle No. 354 on Inquiry Card—Page 17

Five 'Bonus' Employees With Telescriber System

Prior to the installation of a Tel-Autograph telescriber system, Raytheon Mfg. Co. used a complicated means of routing the information concerning the receipt, inspection and disposition of incoming material. Now, on arrival, a single writing of the information from a packing slip on the telescriber simultaneously repeats the information at six other locations. Thus, in the Receiving Department, it has been possible to move 5 employees to other departments. Total savings in overhead for the department is $35,000 annually.

Circle No. 355 on Inquiry Card—Page 17

3 Purpose Delinquency Notice Reduces Paperwork Handling

At the Kentucky Power Co., a courtesy notice, cut-off notice and collector's record, are all prepared at one writing. The form, from Autographic Business Forms, Inc., which uses a cartoon and verse idea, is mailed to household accounts who are delinquent in payment of bills. On preparation, part 1 is mailed immediately. If payment is not received part 2 goes out.



When delinquency persists, part 3 goes with a collector. The form cuts extra typing to handle delinquent accounts and reduces involved paperwork handling to maintain such records.

Circle No. 356 on Inquiry Card—Page 17

Arrangement of 2 Departments Halves Employee Requirements

By combining the mailing and filing departments in a new office layout, the Blackstone Corp., Jamestown, N. Y., found a saving in the number of employees needed to handle the jobs. Using Art Metal counter-height files, the 32, 3-drawer units were set up in a U-shape, with the back of the files



Pin Point Applicator Speeds up pen and instrument filling. Prevents spilling or drying of ink. Applies just the right amount of ink. Uses up the last drop.

New Electro-Polarized Ink *No shaking necessary.* Particles electro-polarized to prevent settling. Uniform color throughout bottle . . . always. *Completely opaque, uniformly black.* No grey areas. No chipping or peeling.

FREE SAMPLE

MAIL COUPON

The Carter's Ink Company, Dept. B-6
Cambridge 42, Massachusetts

Please send me a FREE SAMPLE of Carter's New Squeeze Bottle India Ink.

Name_____

Company_____

Street_____

City_____ State_____

For More Information Circle No. 791 on Inquiry Card—Page 17



Wee Bonny Blessing!

The BRAND-NEW

Weldon Roberts Eraser

No. 38 BALL POINT



Cleanly Erases All Writing of Ball Point Pens and Pencils

Get acquainted immediately with this new, sensational, time-saving eraser!

Made by the world's foremost eraser experts, of specially-textured rubber, for clean erasures of all ball point ink and ball point lead. Attractively green-colored. Handy elliptical shape.

Ask your dealer for demonstration and prices NOW!

WELDON ROBERTS RUBBER CO.
365 Sixth Avenue Newark 7, N.J.
World's Foremost Eraser Specialists

For More Information Circle No. 792 on Inquiry Card—Page 17



forming a partition. The open end faces a smaller file enclosure housing the mailing department. Now, only two employees are needed to handle either or both jobs, where before, four people were required.

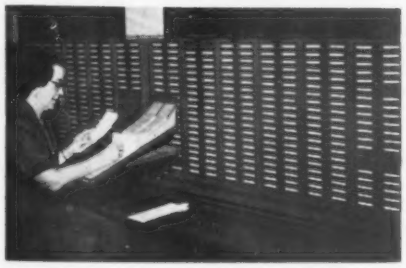
Circle No. 357 on Inquiry Card—Page 17

Ready Made Chart Components Speed Setting of Data Boards

Lukens Steel Co., Coatesville, Pa., has constantly worked at methods of keeping its executives abreast of constantly changing market conditions. Discarding slow, laborious methods, Lukens uses a charting system devised by Chart-Pak, Inc. Self-adhering tapes, printed in a variety of patterns, lines, colors, etc., are used to prepare an over-all market board.

Circle No. 358 on Inquiry Card—Page 17

Kardex Helps Stop 'Out of Service' Profit Losses



A Remington Rand Kardex system was installed by Coca Cola Bottling Co., Rock Hill, S. C., to stop the loss of vending profits by controlling parts inventory for bottle vender maintenance. With the inventory figure entered on each card, and the figure denoting stock on hand reduced as each part is removed, it is simple to spot inventory levels at any given moment. Through the use of Kardex, the company balances its parts against actual needs. There are no more coolers, out of service, losing money, waiting for repair or replacement parts.

Circle No. 359 on Inquiry Card—Page 17

Prominent Users of Strathmore Letterhead Papers: No. 116 of a Series



Young race horses are a symbol of spring in the thoroughbred horse raising areas of the United States. This broodmare, which has already produced a noted racer, grazes with her newest foal.

American Thoroughbred Breeders Association, Inc.

Thoroughbred **QUALITY** *wins!*

"Breeding the best to the best" is the policy followed by breeders of thoroughbred horses. Only by concentrating on quality can a breeder produce horses able to distinguish themselves in the rigorous competition of the turf. The American Thoroughbred Breeders Association, Inc. furnishes leadership and guidance to its large and prominent membership.

The Association also endeavors to maintain high standards in breeding and racing horses and sets an example by establishing quality procedures in every particular of its operation. Take, for example, its choice of a Strathmore letterhead paper for stationery, from a line that assures dependability and performance.

The reputation of Strathmore letterhead papers for quality makes them the choice of many of the leading organizations in the country. Their expressive character conveys an immediate feeling of integrity and reliability. Ask your supplier to show you samples and see the difference that quality makes.

STRATHMORE LETTERHEAD PAPERS: *Strathmore Parchment, Strathmore Script, Thistlemark Bond, Alexandra Brilliant, Bay Path Bond, Strathmore Writing, Strathmore Bond. Envelopes to match converted by the Old Colony Envelope Company, Westfield, Mass.*

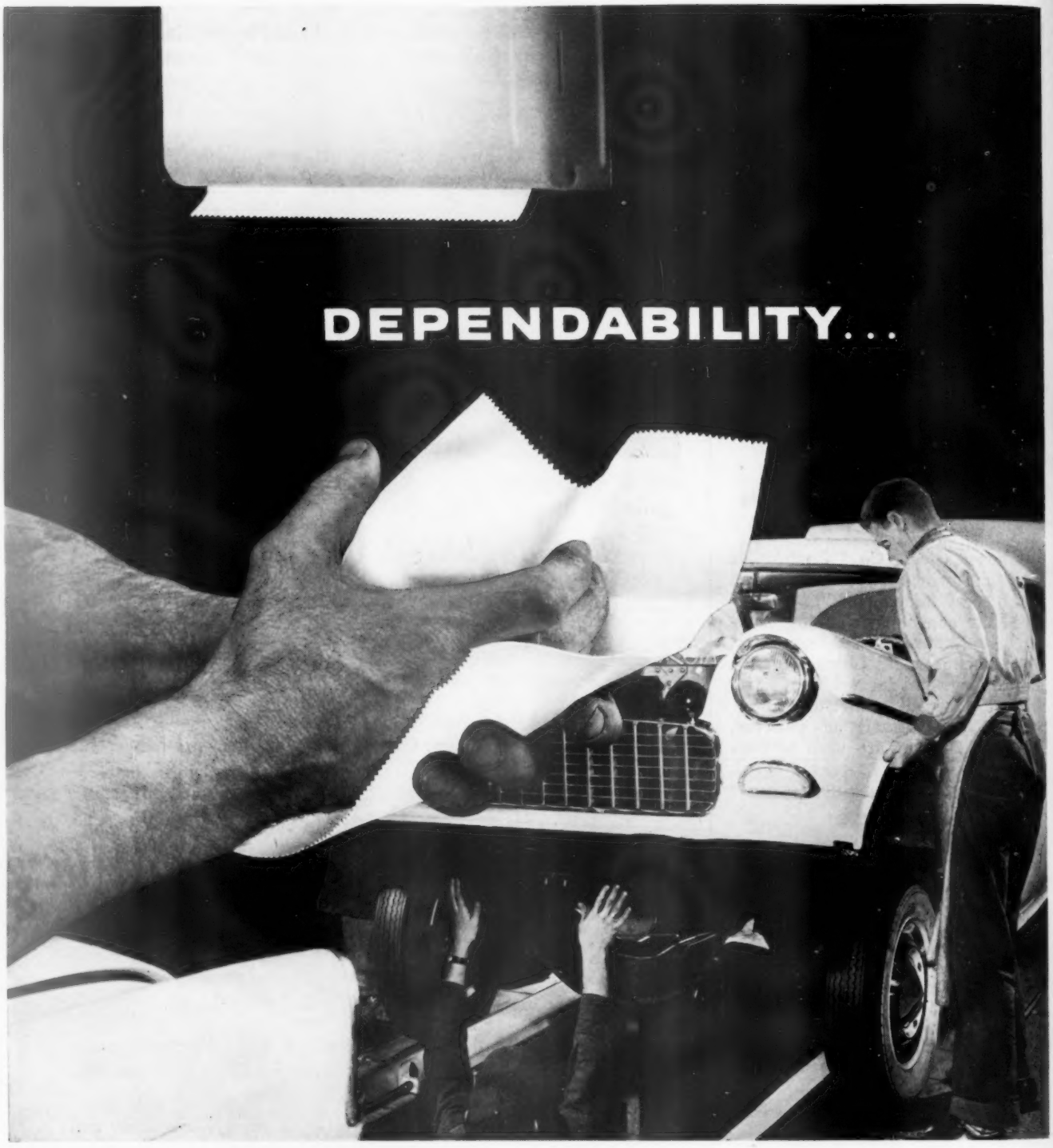
STRATHMORE THIN PAPERS: *Strathmore Parchment Onion Skin, Strathmore Bond Onion Skin, Strathmore Bond Air Mail, Strathmore Bond Transmaster.*

STRATHMORE

MAKERS OF FINE PAPERS

Strathmore Paper Company, West Springfield, Massachusetts

For More Information Circle No. 793 on Inquiry Card—Page 17



First with America's automobile industry

NIBROC® TOWELS ... first wet strength towel

and still the finest ... Super-absorbent—strong—sanitary—soft-textured Nibroc Towels are used by more institutions and industries than any other paper towel. Buy the finest—Nibroc Towels together with Nibroc Sofwite or Softan Toilet Tissues. For name of distributor see "Nibroc" in your classified directory or write Brown Company, Dept. NG-6 150 Causeway Street, Boston 14, Mass.



For More Information Circle No. 794 on Inquiry Card—Page 17



Taping Technique Makes Work Gloves Last 15 Times Longer

Work glove consumption and costs have been cut at least a third at Doehler-Jarvis Corporation by the use of Polyken Tape No. 133 as a protective covering. Gloves of workers handling rough castings are often worn out in two days—taped they frequently last for 30 days. On some especially tough jobs where unprotected gloves normally last only half an hour, the use of the tape has extended glove life up to 8 hours. Polyken No. 133 has a tough, tightly woven back that resists abrasion, tearing and cutting.

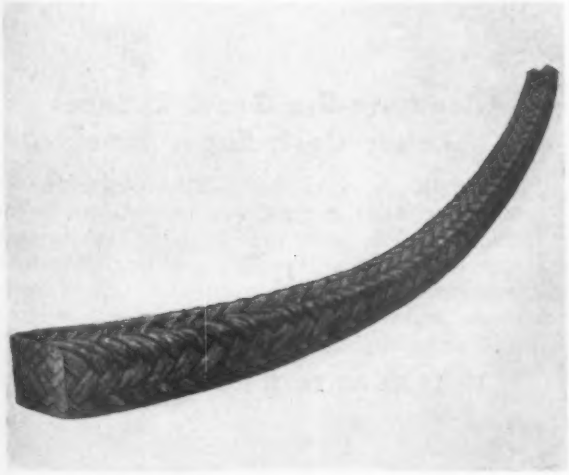
CIRCLE NO. 360 ON INQUIRY CARD—PAGE 17



Steel Shelving Replaces Wood; Storage Floorspace Cut 50%

Some Lyon Metal Products steel shelving was bought by the Whiting Corp. of Harvey, Ill. Previously, wooden shelving was used. The steel shelving effected a reduction of 50% in the floor space alloted to storage of some 15,000 different items. More than 3600 square feet of space was recovered for other useful purposes, a most substantial economy. In addition, parts are easier to locate, saving labor costs and are easier to clean, lowering maintenance costs.

CIRCLE NO. 361 ON INQUIRY CARD—PAGE 17



Teflon Packing Saves Up to $1000 Annually per Machine

Up to a few years ago, Newton Falls Paper Mill, Newton Falls, N. Y. used an ordinary flax packing on the agitator shaft of a bleach chest employing liquid chlorine as agent. There was a constant leakage of stock and bleach liquor so Garlock Teflon packing was tried. This packing proved to have a service life of 1½ to 2 years and prevented loss of stock and bleach liquor. The result: a saving of $1000 per year on one machine.

CIRCLE NO. 362 ON INQUIRY CARD—PAGE 17



Ten Trucks Replace Thirty, Costs Cut 62%

Sunnyhill Coal Co. replaced 30 mechanical drive 20-and 30-ton trucks with 10 50-ton Dart trucks equipped with Allison Torqmatic drives. As a result, operating costs dipped by 18.6¢ per ton. Maintenance costs dropped 13.1¢ per ton. And the trucks now haul 32.6 more tons per truck hour. Accidents have also dropped sharply; drivers stay more alert because complicated, fatiguing shifting of gears is reduced.

CIRCLE NO. 363 ON INQUIRY CARD—PAGE 17



Belting Replaces Gears To Save $1500

A western lumber mill had a machine on which steel gears were used for the power transmission. They wore out too soon, took high cost overtime to repair and replace. A "highflex" belting, made by B. F. Goodrich was substituted for the gears. It has already saved the user $1500 and is still good for unlimited wear as it shows no signs of wear.

CIRCLE NO. 364 ON INQUIRY CARD—PAGE 17



Ready-to-Use Grout Reduces Labor Cost, Saves Time

Ready-to-use, non-shrink Embeco pre-mixed grout was used recently on a machinery installation job to save time and maintain proper alignment of equipment. The job was done with 2 fewer men than were required on similar previous jobs and the time spent grouting was reduced 50%. Proper alignment of equipment was assured.

CIRCLE NO. 365 ON INQUIRY CARD—PAGE 17

Performance-- Value...

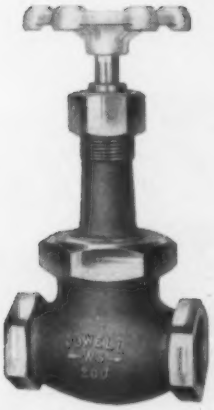


FIG. 2608—Bronze Full Flow Globe Valve for 200 Pounds W.P.



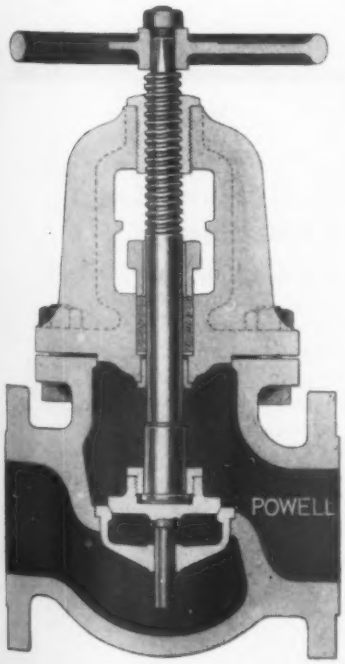
FIG. 1561—150-Pound Steel Swing Check Valve.

. . . POWELL VALVES . . . THE COMPLETE QUALITY LINE . . . POWELL VALVES . . .



FIG. 375—Bronze Gate Valve for 200 Pounds W.S.P

FIG. 1531 (Sectional)— 150-Pound Steel Globe Valve.



Powell Valves

You can depend on outstanding *performance* from every valve made by The Wm. Powell Company, for Powell Valves have a proven record of long life and dependable service.

And Powell Valves give you better *value!* They're precision made and incorporate many quality features—features that can save you money and give you lasting flow control.

Consult your Powell Valve distributor. If none is near you, we'll be pleased to tell you about our *COMPLETE quality line*, and help solve any flow control problem you may have.

The Wm. Powell Company, Cincinnati 22, Ohio . . . . . 109th year

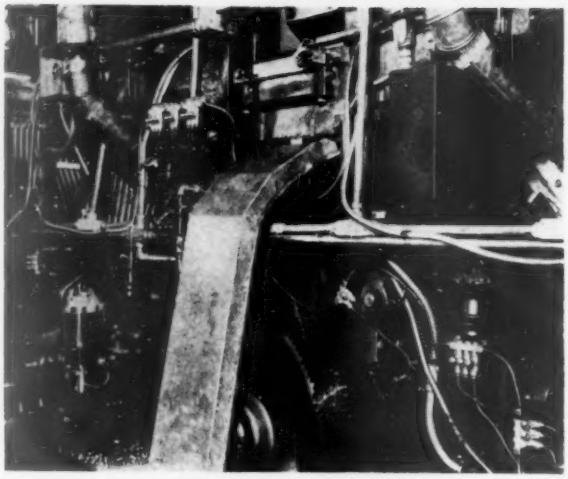
For More Information Circle No. 795 on Inquiry Card—Page 17



6-Hour Packing Job Done in 1

A 6-hour packing operation on reciprocating boiler feed water pumps at Morgan Laundry plant in New York City has been shortened to a 1-hour job. This was accomplished by removing a conventional metal piston equipped with ring type packing and replacing it with a Johns-Manville No. 80 pump cup set, made up of two molded packing cups with composition spacer and follower discs. In addition, service life has been extended from 6 months to over 2 years.

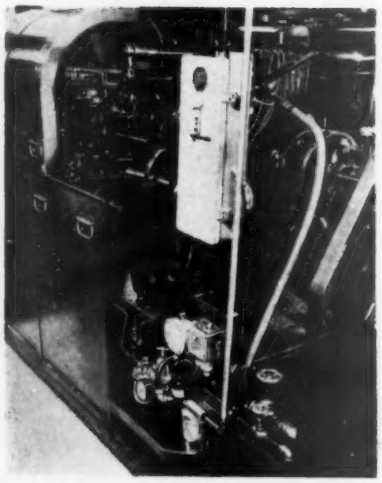
CIRCLE NO. 366 ON INQUIRY CARD—PAGE 17



$540 Expense, Regular Bearing Burnouts Ended By Oiling System

International Seal and Lock Company was spending about $540 yearly by having one man spend half a day each week, hand oiling a special machine. Even with this care, bearing burnouts occurred once or twice each week. After installation of a Lincoln CentrOiler centralized lubricant application system, there were no more bearing burnouts and the labor expense of hand oiling was eliminated.

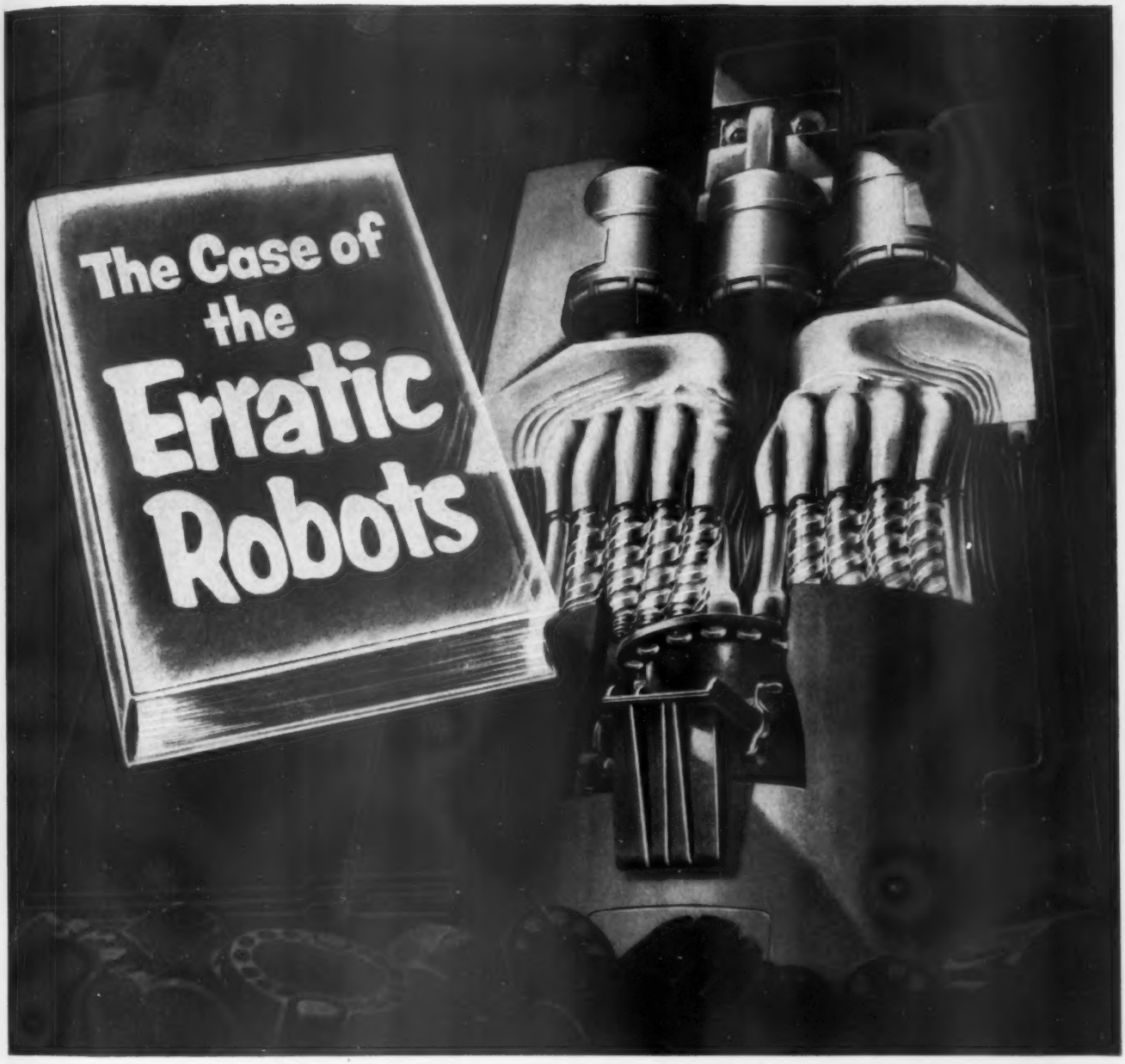
CIRCLE NO. 367 ON INQUIRY CARD—PAGE 17



Lubricating Oil Consumption Almost Eliminated

A high-speed automatic machine in a Detroit automotive equipment plant had a circulating lubrication system which used nearly 15 gal. of oil a day. Oil loss through splashing and leakage was high. It was replaced by the "Micro-Fog" lubrication system. Oil consumption dropped to ½ pint of oil a day. Also, a better job of lubricating the various moving parts was done and there was a noticeable decrease in machine maintenance time.

CIRCLE NO. 368 ON INQUIRY CARD—PAGE 17



How Correct Lubrication cured them— saved $7,600

No question about it—these "robots" were *sick!* Temperature of 194°F...."blood pressure" of 800 psi...constant need of transfusions...erratic motion that made them useless for the precision work they were intended to do.

These robots were two hydraulically-operated, automatic machines in a large auto plant. They were used to face and bore flywheel housing assemblies on engine blocks, and were shut down frequently because of hydraulic valve sticking. To overcome this, the operators had doubled oil pressure in the systems. But this, in turn, resulted in excessive oil leakage and high oil temperature that caused fast deterioration of the oil and further valve sticking. Even complete oil changes every two weeks did not eliminate this trouble.

Socony Mobil men tackled this problem. Working with plant personnel, they studied the operations. A carefully designed program of lubrication was put into effect. This cure worked. Oil temperature dropped, and the valve sticking ended. Machine operation was smooth. Parts met precision requirements. Savings have already amounted to $7,600!

★ ★ ★

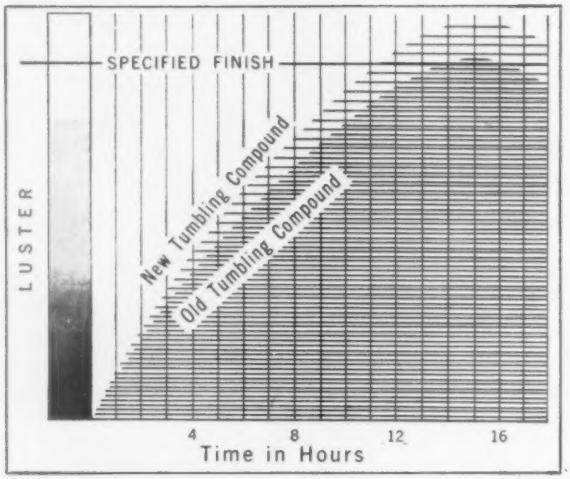
This combination of the right oil plus the world's greatest lubrication engineering service is called—Correct Lubrication. Why not put it to work in *your* plant to help improve production—cut costs?

SOCONY MOBIL *Correct Lubrication*

FIRST STEP IN CUTTING COSTS

SOCONY MOBIL OIL CO., INC., and Affiliates: MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP.
Formerly Socony-Vacuum Oil Company, Inc.

For More Information Circle No. 796 on Inquiry Card—Page 17



New Compound Cuts Tumbling Cost 38%, Saves Four Hours

A wrench manufacturer sharply reduced the cost of deburring forged steel tools merely by using a new compound in the tumbling barrel. The new Van Straaten compound costs 38% less. It requires only 12 hours to remove the amount of stock required for a good finish. The former compound required 16 hours. Thus, the time needed to do the job has been cut 25%.

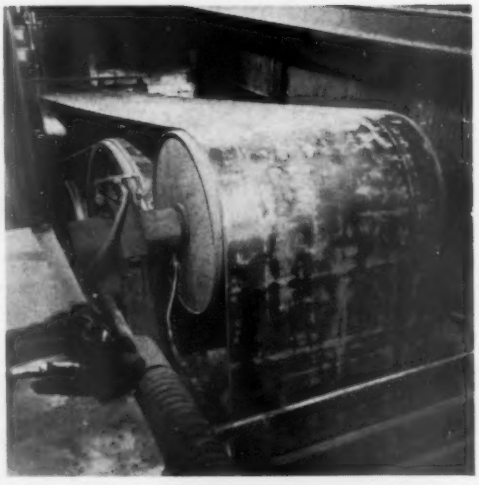
CIRCLE NO. 369 ON INQUIRY CARD—PAGE 17



Proper Colors Help Improve Safety Record 400%

Putting color to work in Jones & Laughlin's cold finishing steel mill increased the safety record from 1,027,000 man-hours without loss time accidents to 4,858,579 man-hours. The slash in workmen's compensation claims is, in part, due to using "Color Dynamics"—using eye-rest colors on stationary or non-critical parts of machines, and brighter colors on moving or critical parts, making them stand out prominently. Besides improved safety, the appearance encourages workers to be neat at their workplace and this cuts maintenance costs.

CIRCLE NO. 370 ON INQUIRY CARD—PAGE 17



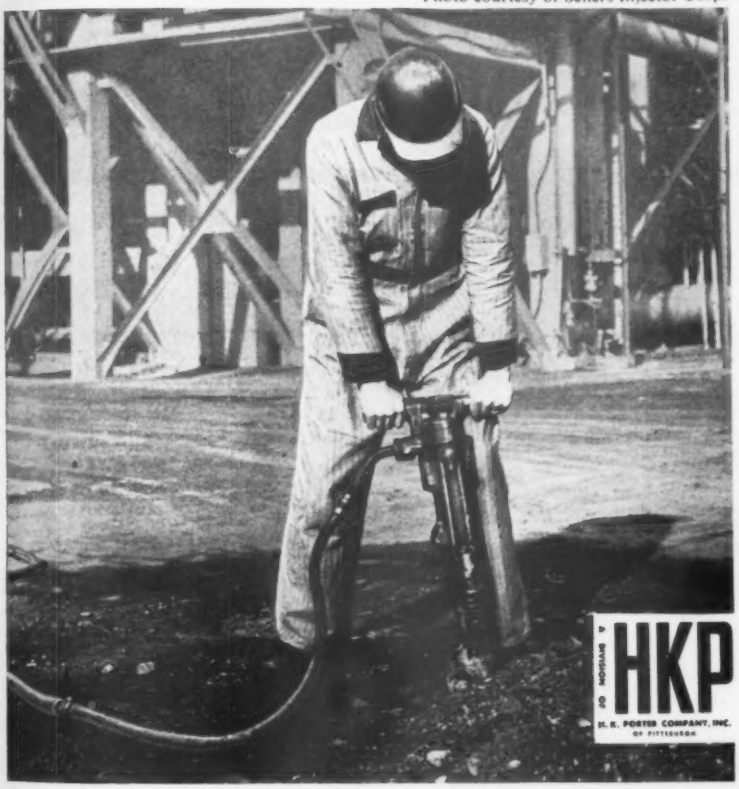
Steel Company Slashes Belt Costs to $.0209 per Ton

Atlantic Steel Co. of Atlanta, Ga. had the problem of lower leather belt cost on a drive for a 5 roll stand on a merchant bar mill. After trying several other types of belt, it installed a specially tanned 3 ply Tannate Watershed leather belting. This belt has lasted 2½ years and outlasted all other types ever used. It is the lowest cost belting ever used—cost is but $.0209 per ton of steel rolled.

CIRCLE NO. 371 ON INQUIRY CARD—PAGE 17



Photo courtesy of Sellers Injector Corp.



One hose does all these jobs... and more

This heavy duty hose is named "Versatile-Multiple Purpose" because it is just that . . . versatile enough for many different uses. As illustrated here, it is efficient for high pressure water service, air drill service, for paint spraying, for cutting lubricants and many other uses.

This versatile hose is of moulded braided construction . . . very light in weight and very flexible. Its tube is of a medium gauge, non-porous, specially blended, oil-resistant rubber compound; its reinforcement consists of one, two or three braids of high tensile fibres, specially treated; its cover is of Neoprene . . . red, medium gauge, non porous and oil-resistant . . . built to withstand extreme weather and abrasion.

Available in sizes from $\frac{3}{16}$" (I.D.) to 1½", in factory reels 400 to 600 feet for the smaller sizes, and 250-foot reels for sizes over 1".

In addition to this multiple-use hose, we also manufacture many other special hoses for a variety of uses, and a complete line of industrial rubber products: belting, hose, packing and moulded rubber products of every construction for every need.

Our research and engineering services are always available to help you solve your industrial rubber problems. *Write for name of your nearest distributor.*

QUAKER RUBBER CORPORATION
Philadelphia 24, Pennsylvania

QUAKER PIONEER RUBBER MILLS
San Francisco 7, California





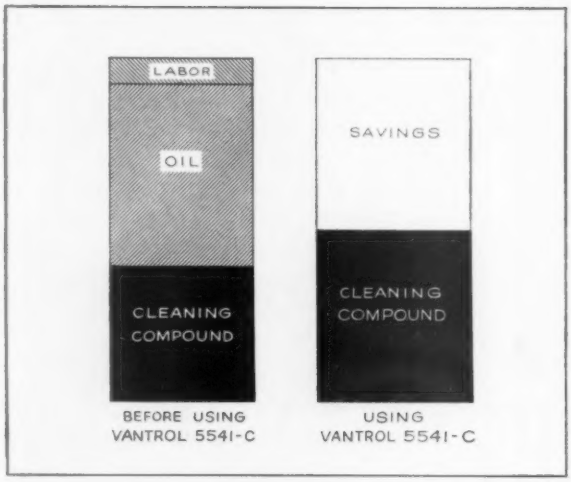
For More Information Circle No. 797 on Inquiry Card—Page 17



Clothing Reduces Cost of Lost Time Accidents

A chemical worker was loading a dryer with a solution at the chemical division plant of Metal Hydrides Inc., Beverly, Mass. The special foil drying tray split, spilling the material on the operator's arm. The sleeve and adjacent area on which the chemical had burned, fused and broke away from the undamaged part, as the operator removed his coveralls, but his shirt underneath had not been touched. The operator's coverall was made by Mine Safety Appliances Co. out of Dynel fabric which is resistant to acids and caustics.

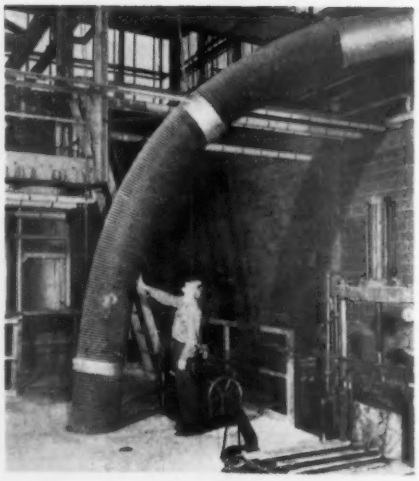
CIRCLE NO. 372 ON INQUIRY CARD—PAGE 17



Rustproofing Cleaning Compound Halves Costs, Saves $66 A Week

An engine plant spent $132 a week to clean aluminum cylinders and rustproof their iron liners. The cleaning material cost $52, rust-preventing soluble oil cost $74 and labor to dispose of used oil cost $6 weekly. By switching to Vantrol 5541-C cleaning compound that costs $66 a week, but protects iron while cleaning aluminum, the plant now saves half of its original cost.

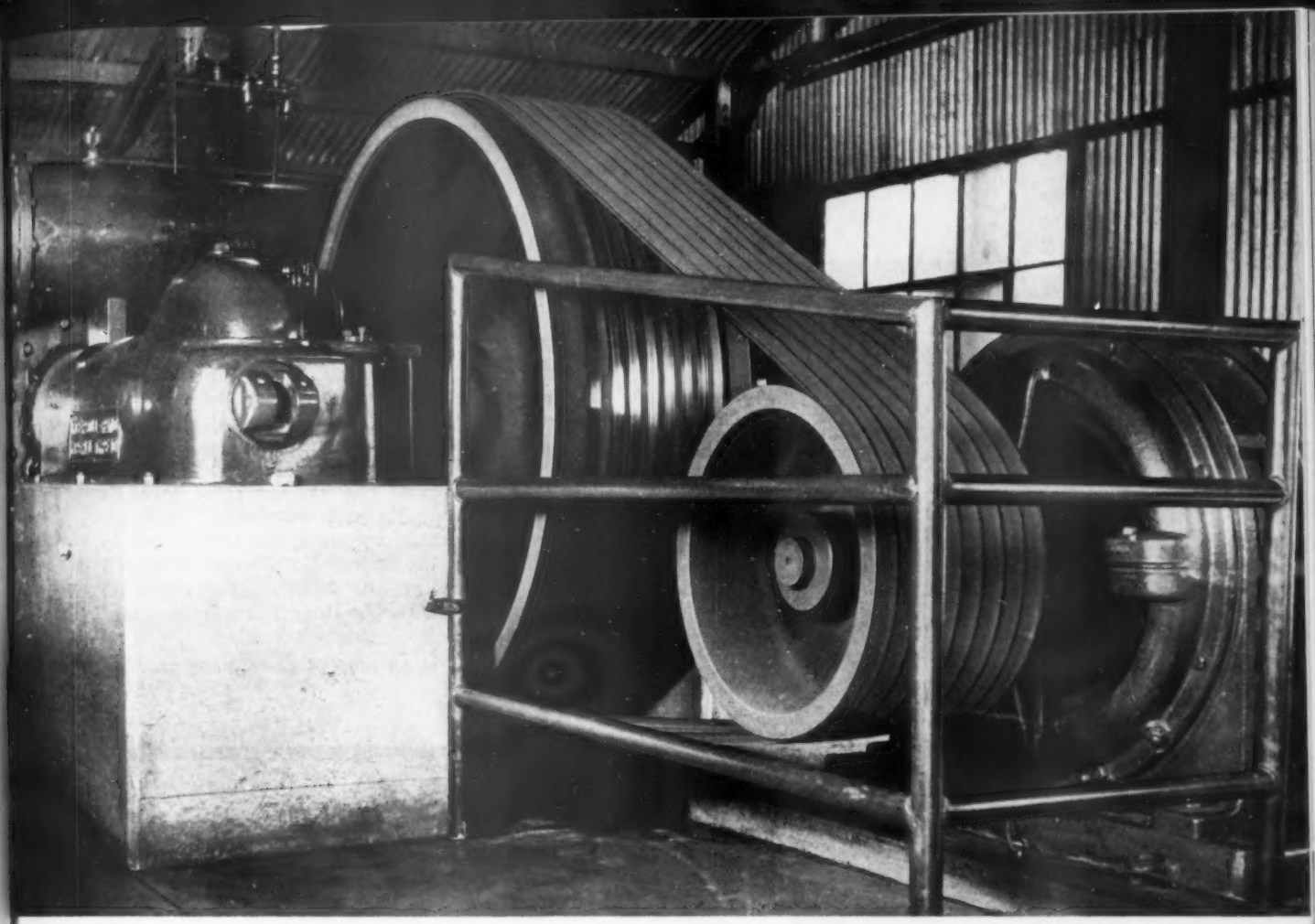
CIRCLE NO. 373 ON INQUIRY CARD—PAGE 17



Rubber Outlasts Steel By 600% For Carrying Sawdust

An economy-minded manufacturer in an eastern state puts to use hundreds of wooden boxes coming into his plant daily. Instead of throwing them away, he grinds them up for fuel. The metal pipe, installed to blow the sawdust on its way to the furnace, was worn out in three months by the hurricane of flying wood splinters. A hose made of a special kind of rubber by B. F. Goodrich was substituted. Sawdust has been whistling through the hose for 18 months without any signs of damage.

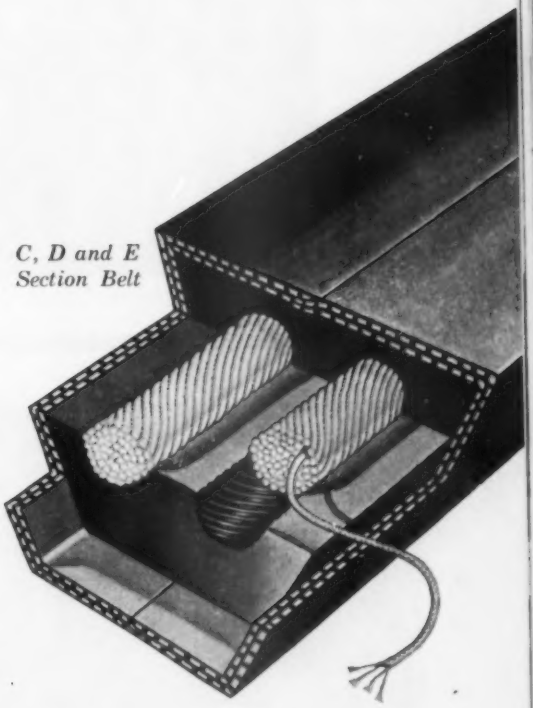
CIRCLE NO. 374 ON INQUIRY CARD—PAGE 17



Thermoid Multi-V Belts cut operating costs

There's a Thermoid V-Belt for every plant application. Every belt is *pre-stretched* to provide longer service and maximum power transmission without slippage. Thermoid C, D and E sections are rayon-grommeted for brute strength and extra flexibility that withstands repeated shock loads. The entire belt is vulcanized into a solid unit that resists moisture, abrasion, internal friction and heat.

Get longer wear with less maintenance . . . cut your operating costs with Thermoid Multi-V Belts. To meet the exacting requirements of any plant service, your Thermoid Distributor carries a complete line of Thermoid Multi-V Belts, Hose and Conveyor Belting. Call him or write direct for complete information.



C, D and E Section Belt

Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

Thermoid

Rubber Sheet Packings • Molded Products
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah



Furnace Construction Changed; 40% Saving in Fuel Results

The Cleveland Hardware & Forging Company has saved up to 40% in fuel costs by changing furnace construction. The furnaces are in the forging division and are either oil or gas operated. The walls, arch and bottom were formerly of a hard type fire brick. The savings came through a change to Johns-Manville insulating fire brick and insulating refractory materials. In addition to the fuel savings, the furnaces can be brought to a working temperature of 2300F about twice as fast as before, last two to three times longer, and there is little spalling due to vibration.

CIRCLE NO. 375 ON INQUIRY CARD—PAGE 17



Hard-Facing Increases Life of Elevator Shafts 52 Times

One application of Haynes 90 hard facing rod has greatly increased the life of elevator shafts used in a cement plant. The shafts are exposed to high temperatures and abrasion from clinkers and dust. Prior to hard-facing, the shafts operated in soft metal bearings. The combination of heat and abrasion wore away both bearing areas so quickly that the elevator was shut down every two weeks for repairs. Hard-facing the shaft made it possible to replace the soft bearings with ones made of cast iron. This change was made two years ago and the units have been operating since.

CIRCLE NO. 376 ON INQUIRY CARD—PAGE 17

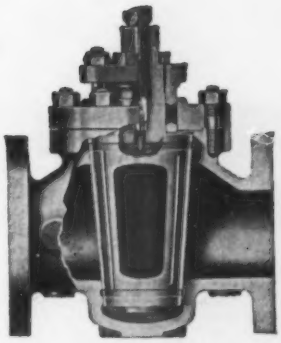


Screw Thread Inserts Cut Repair Time, Reduce Scrap

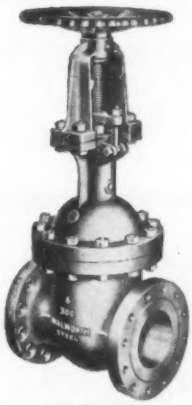
The Glenshaw Glass Co., Glenshaw, Pa., used to send costly neck rings of glass molds, when damaged, to the scrap pile. Now it is saving hundreds of dollars annually by repairing them with Heli-Coil wire screw thread inserts. Previous methods of repairing stripped threads by the build-up-by-weld method were prohibitive in cost as they took two man-hours per hole. Now, by inserting an insert in the stripped hole, the job can be done in ten minutes.

CIRCLE NO. 377 ON INQUIRY CARD—PAGE 17

● VALVES
● PIPE FITTINGS



Walworth
Lubricated Plug Valve



Walworth
Steel Gate Valve



Walworth
Iron Body Gate Valve



Walworth
"500 Brinell" Bronze Globe Valve



Walworth
Iron Body Saddle Gate Valve



Walworth
Cast Steel Flanged Fittings

Walworth manufactures a *complete line* of valves and pipe fittings: all made to the highest standards of quality, both as to dimensional accuracy and metallurgical properties. In design, construction, and performance, Walworth products reflect more than a century of experience in the manufacture of quality valves and fittings.

Your Walworth distributor will give you full information on the *complete line* of Walworth steel, iron, and bronze, and special alloy valves and pipe fittings; also Walworth Lubricated Plug Valves, and Walseal* valves, fittings and flanges. Ask for this information today.

*Patented—Reg. U. S. Pat. Off.

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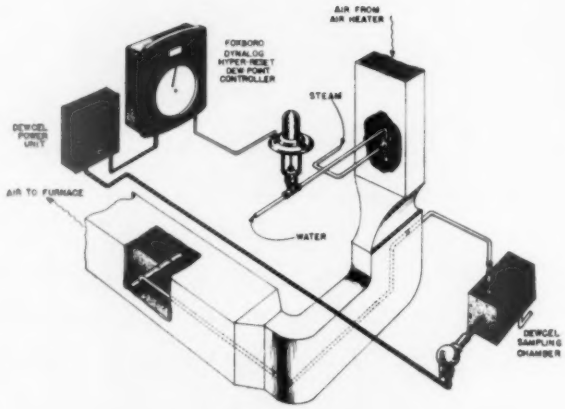
For More Information Circle No. 799 on Inquiry Card—Page 17



Paint Rollers Apply Chemical Finishes in Half Time

A fast method of applying chemical resistant finishes to metal equipment has been developed by Gates Engineering Co., Wilmington, Del. They apply it with rollers which are made with a plastic core, to which is permanently bonded a Dynel cover fabric. Use of the Dynel covered rollers cuts application time in half and gives a better coating.

CIRCLE NO. 378 ON INQUIRY CARD—PAGE 17



Boiler Shutdowns Due to Slag Cut Down

An expensive problem in the boiler house is the frequent need to remove slag deposits forming on boiler tubes. It puts boilers out of commission during cleaning operations. Formation of these deposits varies with the furnace air dewpoint. Detroit Edison Co. has found a means of slowing formation of these deposits. It has installed on its stoker fired furnaces Foxboro controllers which control dewpoint of the furnace air. As a result, shutdowns for cleaning and repair have been cut sharply.

CIRCLE NO. 379 ON INQUIRY CARD—PAGE 17



Acid-Resisting Industrial Clothing Lasts 10 Times Longer

Miners at Mountain Copper Co.'s Hornet Mine in California found that their clothing was often reduced to half-rotted shreds in a week. The mine contained sulfurous water which ate up ordinary cloth if it came in contact with it. The miners now wear industrial clothing made by Mine Safety Appliances Co. from Dynel. It lasts about ten times longer than their old, short-lived clothing. Dynel clothing is also used in industrial plants were resistance to acids or caustic is a must.

CIRCLE NO. 380 ON INQUIRY CARD—PAGE 17

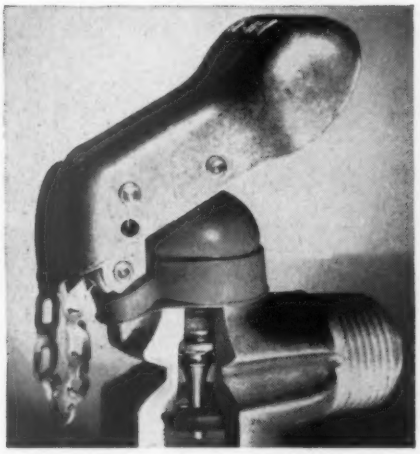
Here's why Ansul extinguishers give you faster, more dependable fire protection!



READY for instant action under the most severe exposure conditions.



WEATHER-TIGHT NOZZLES made of aluminum and stainless steel, can't rust. Neoprene cap and oil-impregnated washers keep out moisture.



PUNCTURE PIN. In this aluminum housing a stainless steel pin pierces the gas cylinder that supplies the propellent power for the dry chemical.



PATENTED NOZZLES. Straight or fan stream, the hazard determines which is installed. An Ansul exclusive for more effective fire control.



FIELD RECHARGING. Just 4 minutes after a fire is extinguished your Ansul unit can be recharged, ready for action. No special tools are needed.

The pictures on this page tell half a story. The complete story includes Ansul's facilities for training your personnel in the science of fire control and prevention. Experience has taught us that *complete* fire protection demands *both*—fast, dependable equipment and trained personnel to man that equipment. Ansul can provide both. Get in touch with your local Ansul man, he has the complete story about *complete* fire protection.

Call the ANSUL MAN!

Get in touch with your local Ansul man through the "yellow pages," or write direct to ANSUL CHEMICAL COMPANY, Fire Equipment Division, Dept. F-81, Marinette, Wisconsin.



Write Ansul for your copy of New Fire Equipment Catalog.

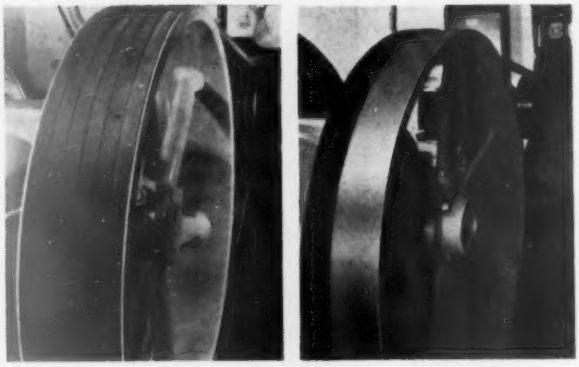
ANSUL



$3000 Incinerator More Than Pays for Itself In a Year

An Illinois firm that had been paying $4000 yearly in scavenger costs to dispose of bulky wastes, installed a Brulé naturally fired incinerator to do the job. Cost of the unit installed was about $3000. The incinerator has paid for itself in a year, and its operation takes less time and energy than was previously spent in preparing cans for scavenger pick-up, and cleaning them out.

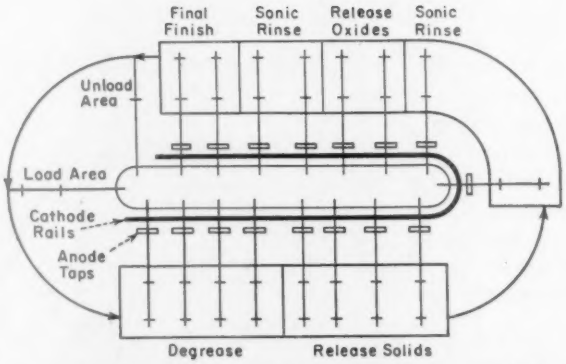
CIRCLE NO. 381 ON INQUIRY CARD—PAGE 17



New Type Belt Reduces Replacement Frequency

Six D-210 standard multiple V-belts driving an 80 hp air compressor were replaced with a single 3-inch Poly-V belt at Raybestos-Manhattan's Rubber Division in Passaic, N. J. Failure of the former drive had necessitated four replacements in belts and sheaves in 12 years at a cost of $1256 plus downtime losses. After nearly three years of operation of the Poly-V drive, neither belt nor sheaves show any sign of wear.

CIRCLE NO. 382 ON INQUIRY CARD—PAGE 17

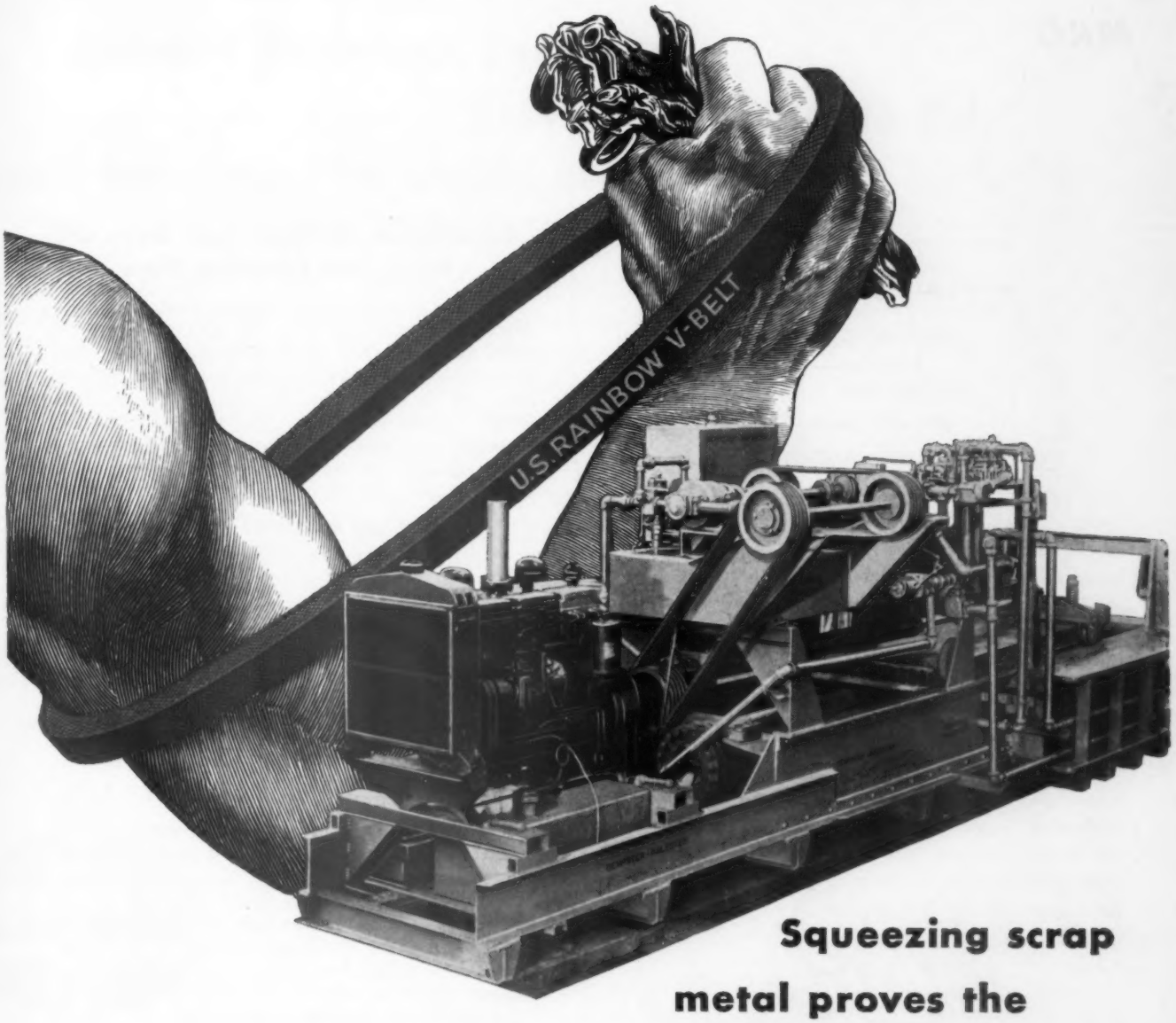


Process for Electrolytically Cleaning Glass Molds

Cleaning System Saves $80,000 Annually

Every year one of the country's largest glass bottle plants found itself having to spend $45,000 replacing glass molds which had become worn out while being repeatedly cleaned. Method of cleaning was by sand or vapor blasting, acid pickling or grinding. An electrolytic process of cleaning using Hanson-Van Winkle-Munning equipment was substituted. The process does not damage or wear out the mold and replacements are no longer needed, saving $45,000. Another $35,000 is saved on labor, cutting total costs 30%.

CIRCLE NO. 383 ON INQUIRY CARD—PAGE 17



Squeezing scrap metal proves the "MUSCLE TOUGHNESS" OF U. S. RAINBOW V-BELTS

Many scrap metal dealers use the Dempster-Balester to bale sheet metal into easy-to-handle units. The tremendous power of the machine puts terrific shock loads on V-Belts —U. S. Rainbow® V-Belts. These muscular belts stand up under this treatment because they each have the unique Equa-Tensil Cord Section, a scientifically developed "U. S." construction that brings together in a balanced unit the concentrated strength of multiple pulling cords, distributes the load so evenly among the cords that each carries its full share of the load.

U. S. Rainbow V-Belts have greater gripping power, without slippage, because the straight sidewalls grip the grooves the full height of the belt. Every ounce of excess stretch is worked out mechanically before leaving the factory, yet the belt remains elastic enough to stand heavy shock loads.

U. S. Rainbow V-Belts are obtainable through any of our selected distributors, or any of United States Rubber Company's 27 strategically located District Sales Offices, or write address below.

A COMPLETE DRIVE SERVICE

MULTIPLE V-BELTS • F. H. P. V-BELTS • SHEAVES
FLAT BELTS AND BELTING • SPECIAL PURPOSE BELTS
POWERGRIP "TIMING"® BELTS

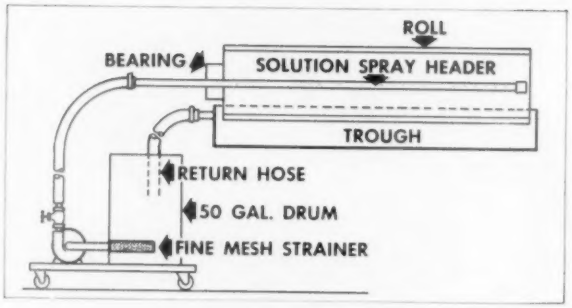
"U. S." Research perfects it
"U. S." Production builds it
U. S. Industry depends on it.

US RUBBER

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MECHANICAL GOODS DIVISION · ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Hose • Belting • Expansion Joints • Rubber-to-metal Products • Oil Field Specialties • Plastic Pipe and Fittings • Grinding Wheels • Packings • Tapes Molded and Extruded Rubber and Plastic Products • Protective Linings and Coatings • Conductive Rubber • Adhesives • Roll Coverings • Mats and Matting

For More Information Circle No. 801 on Inquiry Card—Page 17



Circulation Method Cuts Days Off Press Roll Cleaning Time

Removing scale from suction press rolls at a Michigan paper mill used to take two men two days. Each roll had to be dismantled, then carefully hand drilled, and reassembled. Now, rolls are descaled in place by circulating an inhibited acidic solution, made by Oakite Products, through each one, and neutralizing. This method gives equally effective results and requires less than 1 hour and 15 minutes.

CIRCLE NO. 384 ON INQUIRY CARD—PAGE 17



Four Hour Cleaning Job On Lift Trucks Done in Minutes

A New York appliance manufacturer is saving several hours by steam-cleaning his lift trucks prior to overhaul and repair, by using a steam-detergent gun. Formerly, hand scrubbing each truck had taken as long as four hours, and cleaning in hard-to-reach areas was never complete. Steam detergency does a thorough job and has reduced cleaning time to 20 minutes per truck. The gun is made by Oakite Products.

CIRCLE NO. 385 ON INQUIRY CARD—PAGE 17



Gasoline Power Saw Saves Three Days Work on Construction Job

One man using a gasoline power saw made by Wright Power Saw and Tool Corp. cut 450 ties from a buried street railway bed in less than 8 hours. The job would have taken more than three days with a hand saw, slowing down the whole construction job involved. The operator required no training, since the guarded blade protects him from exposed cutting teeth.

CIRCLE NO. 386 ON INQUIRY CARD—PAGE 17

Bremen Bearings, Inc., uses SUPERLA Soluble Oil to give bearings the clean, cool treatment

PRECISION NEEDLE BEARINGS are the exclusive product of Bremen Bearings, Inc., Bremen, Indiana. SUPERLA Soluble Oil is used exclusively in all eight of the Company's Cincinnati Centerless Grinders. Plant management experimented with various soluble oils before settling on SUPERLA. They found none could compare with SUPERLA Soluble Oil with respect to wheel loading, stability and tool machine cleanliness.

Plus these benefits, Bremen found SUPERLA mixed readily with water regardless of degree of hardness. The Company found, too, that they got longer tool life and maximum rust protection of work and machines.

You will have the same experience with SUPERLA Soluble Oil. Find out. Inquire of your Standard Oil lubrication specialist. In the Midwest call your nearby Standard Oil office. Or write Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Ill.

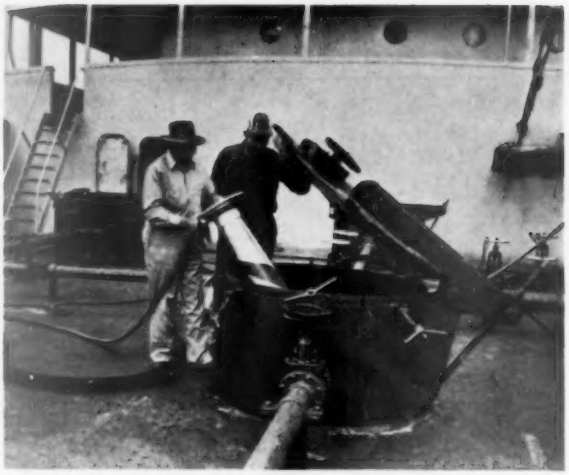
STANDARD OIL COMPANY (Indiana)

STANDARD



Franklin D. Clark (right), Sales Manager, Bremen Bearings, Inc., and Standard Oil lubrication specialist E. A. Hunt, inspect needle bearing. Gene Hunt is well qualified to assist industrial plants on lubrication problems. In addition to his three years' experience in industrial lubrication sales work, Gene has an M. E. degree from Purdue and has completed the Standard Oil Sales Engineering School. Customers find this experience and training pay off *for them*.

Bearings being ejected from Cincinnati Centerless Grinder at Bremen Bearings, Inc. The Company manufactures needle bearings to customers' specifications in sizes from 1/16 to 1/2 inch with tolerances of .0001" and finishes to 3 micro-inches. SUPERLA Soluble Oil is used on all of the Company's grinders.



Ship Ventilating Done in Minutes Instead of Hours; Repair Speeded

The need for purging work areas of toxic fumes and flammable gases often caused costly delays in emergency repairs in inside compartments of tankers owned by Gulf Copper & Mfg. Co. Lightweight air movers operated by compressed air without moving parts now do in 15 minutes jobs that formerly took hours. The portable ventilating devices operate during loading or discharging of cargoes, and are used while men are working in the compartments. This was not the case when steam cleaning or natural drafts were used. The equipment is made by Mine Safety Appliances Company.

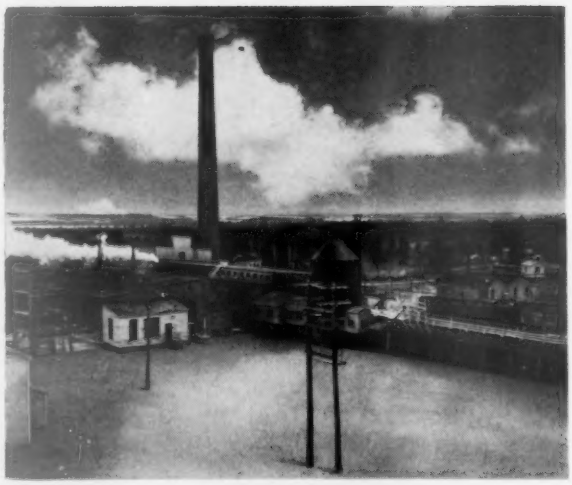
CIRCLE NO. 387 ON INQUIRY CARD—PAGE 17



Telescopic Scaffold Lowers Maintenance Costs Up to 50%

A Pennsylvania manufacturing firm reports that use of this telescopic scaffold in maintenance operations has reduced labor costs between 15 and 20%. A large midwestern retail organization states that better than 50% of the labor previously employed is saved by use of the equipment. The Hi-Lift extension scaffold is made by Atlas Industrial Corporation.

CIRCLE NO. 388 ON INQUIRY CARD—PAGE 17



Annual Coal Bill Cut $7000

The boiler plant at DuPont's Barkdale works was operating inefficiently due to an old forced draft system and unwieldy combustion control. DuPont engineers decided to modernize these operations. An up-to-date draft fan and automatic control system were installed. Today savings of $7000 annually have been realized—a gross return of 140% on investment. Not only has the equipment paid for itself in one year but it has produced the additional advantages of lowered maintenance costs and increased capacity.

CIRCLE NO. 389 ON INQUIRY CARD—PAGE 17

NEW B&W MULRAM 3200 degree Refractory Ramming Mix

More than two years service under tough conditions of slagging and metal penetration have proved the economy of B&W's new ramming mix, Mulram. Used to form monolithic refractory structures, B&W Mulram, which has a crushed fused-mullite base, is recommended for temperatures up to 3200 F. Its combination of low porosity and permeability, when installed, give Mulram the highest possible resistance to metal or slag penetration.

Not only is Mulram's permeability low, but it actually decreases from the hot face to the cold face. This means an *increasing* resistance to penetration through the thickness of the lining. Standard firebrick, on the other hand, have a higher and constant permeability through their thickness.

This combination of maximum resistance to slag and metal penetration and the 3200 F use limit are the chief reasons why B&W Mulram has given superior service in applications like these:

- **Barium chloride salt bath furnaces**
- **Linings for indirect-arc electric furnaces melting iron, steel or non-ferrous metals**
- **Forehearths or holding ladles for gray and malleable iron**
- **Runners and slagging basins on continuous cupolas**
- **Crucible furnace walls.**



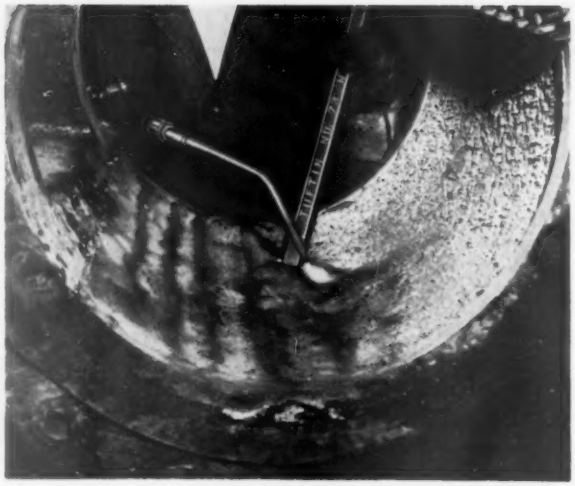
B&W Mulram is being rammed into the bottom of this salt bath furnace. Furnace walls are formed with B&W Mulram, backed up by B&W's 3000 degree castable, Kaocast, and insulated with B&W K-20 Insulating Concrete Mix.

Even when penetration is not a serious problem, B&W Mulram often proves economical in such applications as burner blocks or burner tunnels because of its volume stability and high hot-load strength after proper firing. Standard Mulram is made in 4-mesh size, wet or dry form (Mulram 4W and 4D). Other mesh sizes are available for special applications. Call or write your local B&W Refractories Engineer for complete information.

B&W REFRACTORIES PRODUCTS: B&W Allmul Firebrick • B&W 80 Firebrick
B&W Junior Firebrick • B&W Insulating Firebrick • B&W Refractory Castables, Plastics and Mortars
OTHER B&W PRODUCTS: Stationary & Marine Boilers and Component Equipment
Chemical Recovery Units • Seamless & Welded Tubes • Pulverizers • Fuel Burning Equipment
Pressure Vessels • Alloy Castings

BABCOCK & WILCOX
THE BABCOCK & WILCOX CO.
REFRACTORIES DIVISION
GENERAL OFFICES: 161 EAST 42nd ST., NEW YORK 17, N.Y.
WORKS: AUGUSTA, GA.

4559



Brazing Worn Bearing Liner Costs 45% Less

B. F. Goodrich Co. used to remove a worn stave roll neck bearing liner from its housing machine a brand new liner, and press it back into the housing. Now it is necessary only to braze with Tuftin and machine for size and concentricity. In addition, on the initial renewal, V grooves must be machined in the worn surface and the surface tinned. Savings on the first installation are 10%; on subsequent renewals they are about 45%. Tuftin alloy is made by Jackson Wheeler Metals Service Inc.

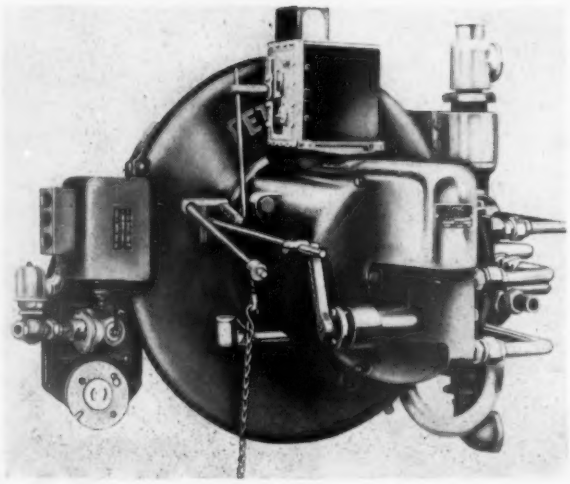
CIRCLE NO. 390 ON INQUIRY CARD—PAGE 17



Rolling Work Tower Reduces Window Installation Time ⅔

A two-thirds reduction in working time was obtained when a Safeway rolling work tower was used on a window installation job on a midwestern industrial building. After the building was constructed it was found necessary to install 224 combination units on second floor windows. It was estimated the job would take two men 8 days using extension ladders. The tower, equipped with inside walk-up stairs, permitted them to do it in 2½ days. The tower was assembled from standard parts made by Safway Steel Products.

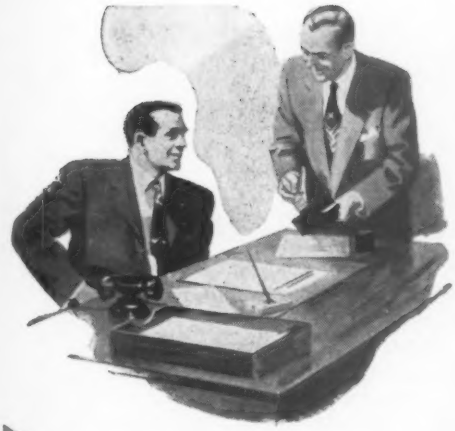
CIRCLE NO. 391 ON INQUIRY CARD—PAGE 17



Burning Lower Cost Fuel Saves $12,000 per Year

Davis & Furber Machine Co., North Andover Mass. reports a $12,000 saving in fuel cost the first year it installed a modern industrial oil burner. Saving was effected because the burner incorporates the "thermal viscosity principle." Oil is heated before being injected into the firebox. This makes for steadier burning and also permits use of heavy fuel oils which won't flow when cold. Such oils (Nos. 5 & 6) are 8% richer in heat value and cost less per gallon. Petro supplied the oil burner.

CIRCLE NO. 392 ON INQUIRY CARD—PAGE 17



SEE RUST-OLEUM APPLIED DIRECTLY OVER SOUND RUSTED SURFACES! MAKE THIS TEST UNDER YOUR OWN CONDITIONS AND SEE PROOF OF PERFORMANCE!

See Rust-Oleum 769 Damp-Proof Red Primer actually applied over a badly rusted surface after simple scraping and wire-brushing to remove rust scale and loose rust in the Rust-Oleum *"rusted panel demonstration."* Rust-Oleum's specially-processed fish oil vehicle *penetrates* rust to bare metal usually eliminating sandblasting and other costly surface preparations.

Rust-Oleum finish coatings in Aluminum, Green, White, Gray, Yellow, Black, Orange, Blue and others provide both *Rust Prevention* and *Decorative Beauty!* Specify Rust-Oleum for new construction, maintenance, and re-modeling. See Sweets for complete catalog and nearest Rust-Oleum Industrial Distributor, or attach coupon to your business letterhead.



RUST-OLEUM®

STOPS RUST!



There Is Only One Rust-Oleum. It Is Distinctive as Your Own Fingerprint. Resists Rain, Sun, Fumes, Snow, Heat, Salt Air, Salt Water, etc.

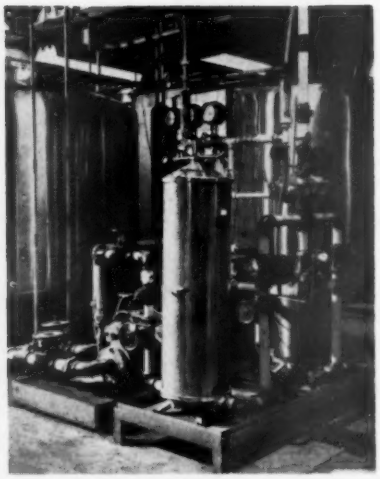


See local classified telephone directory under Rust Preventives or Paints for nearest Rust-Oleum Industrial Distributor.

ATTACH TO YOUR BUSINESS LETTERHEAD AND MAIL TO:
Rust-Oleum Corporation, 2435 Oakton St., Evanston, Ill.

- ☐ Please Show Me the Rust-Oleum "Rusted Panel Demonstration."
- ☐ Test Application of Rust-Oleum Over Rusted Metal Surfaces in My Plant.
- ☐ Complete Literature with Color Chart.
- ☐ Nearest Rust-Oleum Industrial Distributor.

For More Information Circle No. 804 on Inquiry Card—Page 17



Screening Loss Cut 50%

Radio Valve of Toronto needs large quantities of the purest water possible for making TV tubes. Obliged to use city water, the first job is to filter this water to make it sterile and free of minerals. Next 2-3 gallons are put into each TV tube. A fluorescent powder is added and allowed to settle on the screen. After decanting the water, the screen is checked for flaws. By using a Grinell valve in which the water passing through the valve is completely isolated from the valve mechanism, screening losses were cut in half because the water could not become contaminated from contact with the valve.

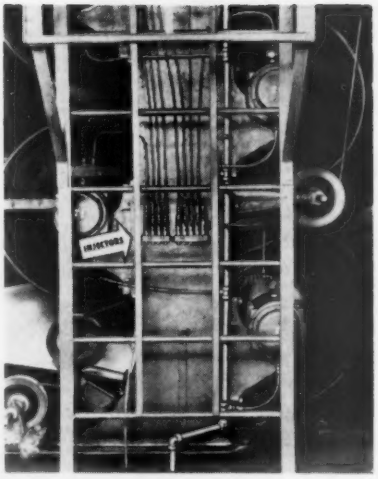
CIRCLE NO. 393 ON INQUIRY CARD—PAGE 17



Month's Savings On Labor Costs Paid For Equipment

One of the country's leading engine manufacturers found that costs were heavy for cleaning outer casings of enclosed coils after injection of potting compound. During curing, compound would harden requiring time and effort to work it free. The assembled coil and housing, with the holes plugged up, are now dipped into tanks of hot melt butyrate peelable plastic. When hardened, plugs are removed and entire units placed in pressure potting compound tanks for curing. After baking, plastic coating is easily stripped off. Manpower saved by new method offsets in one month investment in equipment and materials.

CIRCLE NO. 394 ON INQUIRY CARD—PAGE 17



Centralized Lubrication Ends Bearing Failures; Lowers Cost

Roll neck bearings on paper machine dryer rolls at New Haven Pulp and Board Co. were failing at a rate of 2 to 3 times weekly because of inadequate lubrication. A completely automatic Lincoln centralized lubricant application system was installed. After more than a year of operation not a single bearing has been lost due to lack of lubrication. Previously the lubrication rolls required 10 barrels of oil per week. Now only two barrels are used. And damage to paper from excess lubrication is ended.

CIRCLE NO. 395 ON INQUIRY CARD—PAGE 17



Up a Tree on Chain Selections?

You needn't be! Your CHAIN Belt Man has lots of data at his finger tips . . . chain, chain attachments and sprockets and their application to driving, timing and conveying operations. Why not let the CHAIN Belt Man get you back on the ground . . . solve your chain problems with lower costs and better performance?

CHAIN Belt Engineers are working on new chain applications and ideas every day...designing better, stronger, lower cost chains for every purpose. Be sure you have all the data when you start work on equipment or products involving chain.

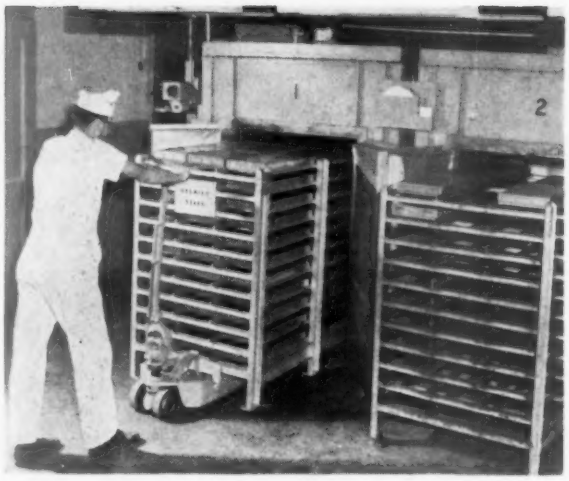
Our engineers are experts on all types of chains. They will be happy to discuss your chain selection and application problems with you. Call your local CHAIN Belt Man or write CHAIN Belt Company, 4764 W. Greenfield Ave., Milwaukee 1, Wisconsin.

Industry looks to **CHAIN BELT COMPANY**

REX®

Drive and Conveyor Chains • Sprockets • Bulk Handling Conveyors • Construction Machinery • Water and Waste Treatment Equipment • Self-Aligning Roller Bearings

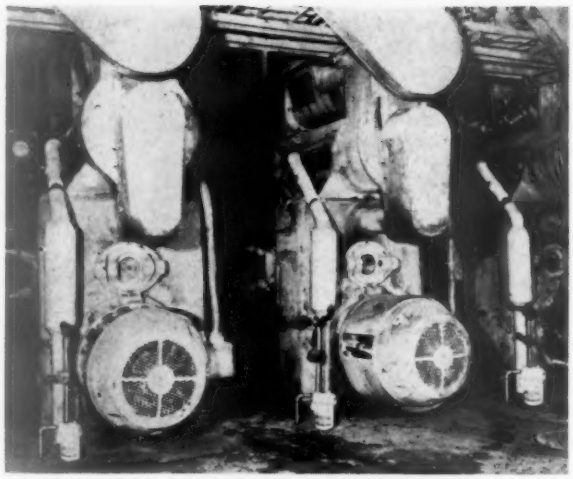
For More Information Circle No. 805 on Inquiry Card—Page 17



Rack Maintenance Cut 90% With Silicones

Trays containing vials of antibiotics at the Lederle Laboratories Div., American Cyanamid Co. have to withstand temperatures of 446 F. The trays are loaded onto racks which have to withstand these elevated temperatures. When these racks were painted with an organic aluminum finish, they withstood only a maximum of 15 hours of such service. Sprayed with a silicone-based aluminum paint, developed by Dow Corning Corp., the racks have endured 150 hours at the sterilizing temperatures without deterioration.

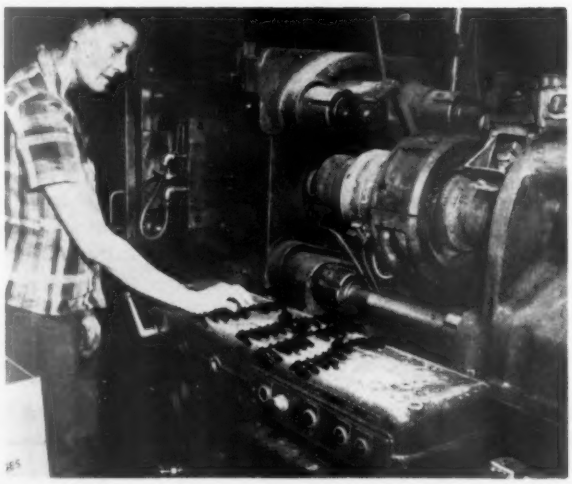
CIRCLE NO. 396 ON INQUIRY CARD—PAGE 17



Dry Steam Cuts Cost of Making Pellets

In many feed manufacturing operations one of the final stages is the formation of pellets. For this dry, clean steam is necessary as pellets do not form readily when condensate is present. The Ralston Purina Co. is solving the problem of dry steam with a line purifier. The device, manufactured by V. D. Anderson Co. removes 99% of the entrained water, line scale, etc., from any steam line. It will also do this in air lines and, in addition to being used on steam ejectors, it can be used on pneumatic tools, kettles, dryers, spray painting equipment, etc.

CIRCLE NO. 397 ON INQUIRY CARD—PAGE 17



Special Oil Cuts Maintenance Costs $1200 A Month

When using a certain lubricating oil in their ten injection-molding machines, Windman Bros., Los Angeles, shut down an average of 4 machines a month to clean oil deposits from valves. Parts, labor and downtime due to this cost $1200 a month. A change was made to Calol OC turbine oil. Valve oil deposit trouble has stopped and all repairs due to faulty lubrication of the machines have been eliminated since using the new oil. It stays clean operating at 135 F and under 1000 psi pressure seven days a week.

CIRCLE NO. 398 ON INQUIRY CARD—PAGE 17

Make All Your Low Pressure Hose Lines from This NEW Aeroquip Kit

SPEED REPLACEMENT! CUT COSTS! REDUCE INVENTORY!

DURABLE ALL-STEEL BOX



JUST PUSH Aeroquip 1525 Hose on the **SOCKETLESS** Fitting . . . It Stays On Even at Pressures as High as 250 p.s.i.
PATENT APPLIED FOR

Back of fitting tray can be raised for convenient use

Kit 5144 contains 93 fittings and adapters in 20 sizes and types

Compartment of Kit 5144 contains 24 ft. of ¼" hose, and 24 ft. of ⅜" hose

Pull out hose, measure it, and cut with knife

Many users have requested a permanent-type container for Aeroquip *SOCKETLESS* fittings and hose. So this durable all-steel Kit 5144 is now available. It contains an inventory of hose, fittings, and adapters in types and sizes that will meet practically all low pressure applications.

With remarkable new Aeroquip *SOCKETLESS* fittings and hose, fuel, oil, water, and air lines can be made and installed *extra fast* on all kinds of industrial and mobile equipment. Field replacement is simplified because Kit 5144 is compact (12½" x 12½" x 6½" when closed) and it will stand up in field service.

Aeroquip *SOCKETLESS* fittings and hose are saving time and money for users in every industry. Get the complete story from your Aeroquip distributor, listed in your Yellow Page Directory, or write us.

Also Available: 15-Cell Kit No. 5143 with 24 feet of ¼" hose and 71 fittings and adapters in same box.

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For More Information Circle No. 806 on Inquiry Card—Page 17



Special Brush Slashes Floor Sweeping Time 75%

Sweepers at Stevens Linen Associates, Webster, Mass. now do as much work in one hour as they used to do in four hours. Reason for their increased productivity is a special broom developed by Fuller Brush for their application. Previously, the best tool for the job was homemade sweeping unit—and it tended to climb over some of the debris inherent to the Stevens Linen operation.

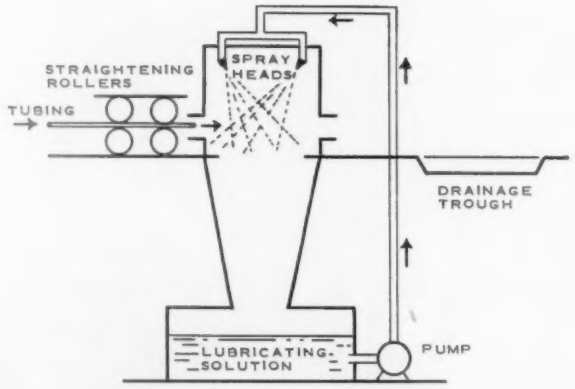
CIRCLE NO. 399 ON INQUIRY CARD—PAGE 17



Fiberglas Belt Saves $3593.81 in 15 Mos.

Frequent downtime for belt changing was necessary for the handling of hot foundry sand from 4 mechanical shakeout units at Columbia Malleable Castings Division, Grinnell Co., Columbia, Pa. With temperatures well over 350F, belts could not last long. However, the installation of a Hewitt-Robins 30″ Fiberglas conveyor belt seemed to be the solution. The belt saved $3593.81 during 15 months of trouble-free, dependable service.

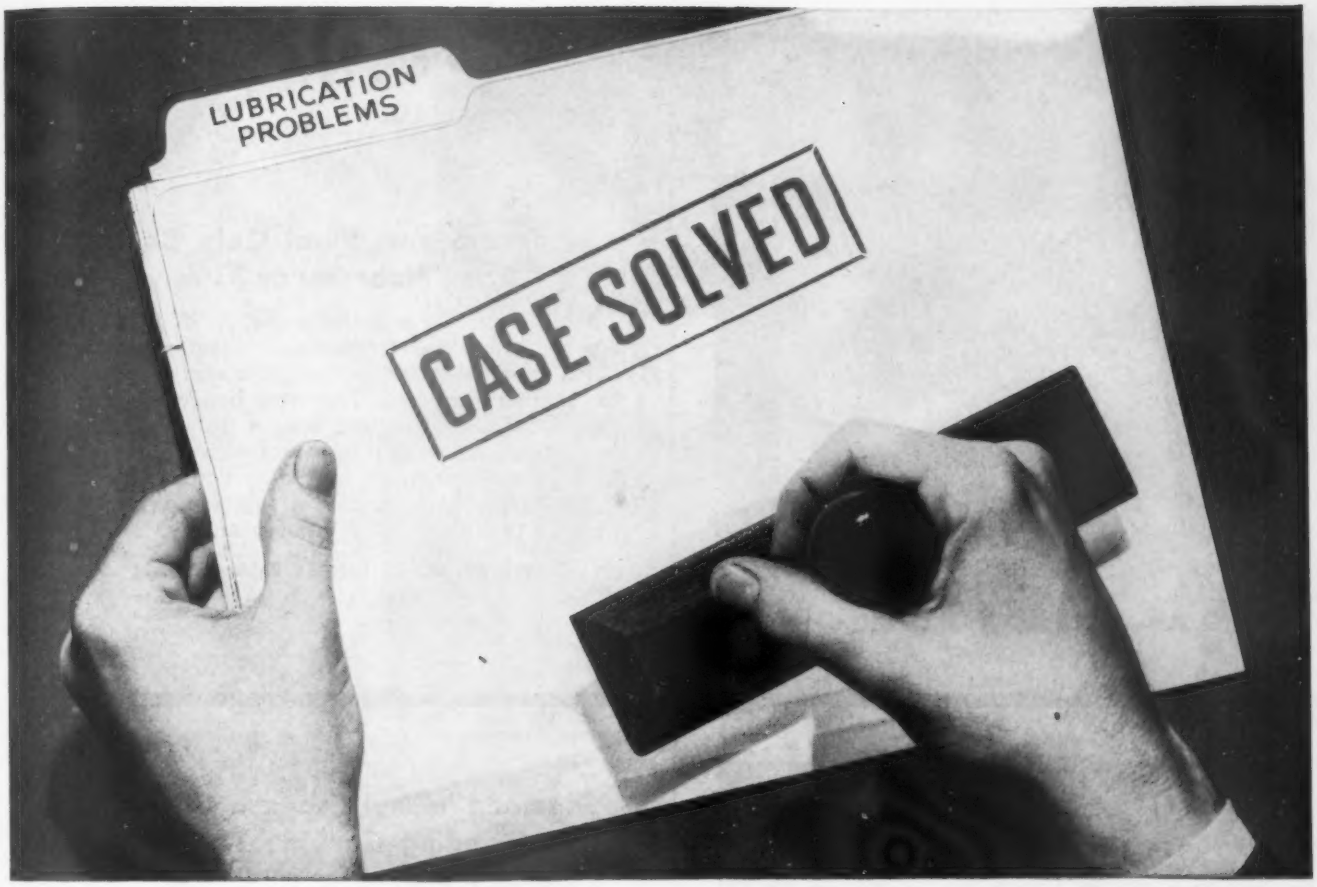
CIRCLE NO. 400 ON INQUIRY CARD—PAGE 17



Lubricant Helps Sizing Dies Last 20 Times Longer

A New York manufacturer of seamless steel tubing was able to size only four lengths of tubing before his tungsten carbide dies would begin to score and require redressing. A phosphoric acid compound made by Oakite Products was substituted for the hydro-carbon coolant, and the solution was sprayed on the tube as it passed through a closed reservoir box. Solution was allowed to dry before sizing. Dies were found to size over 100 lengths before needing redressing.

CIRCLE NO. 401 ON INQUIRY CARD—PAGE 17



Vilter Mfg. Co. Solves 3 problems with Cities Service Lubricants

PROBLEM 1. Formation of carbon on air compressor valves, necessitating shut-down to clean every three months.

PROBLEM 2. Mixing of oil and water on valve gears and bearings of engine driving Vilter's 600 KWH generator. Constant draining required.

PROBLEM 3. Groaning of corliss steam valves on Vilter's condensing, cross-compound steam engine.

Since 1867, Vilter Manufacturing Company of Milwaukee has enjoyed the reputation of solving difficult engineering problems in refrigeration and air-conditioning. So it was natural that when Vilter had a lubrication problem, it would solve that also. Natural, too, that Cities Service Lubricants would be those chosen to carry out the task.

Says Vilter's Chief Power Plant Engineer, James Murphy: "The valves on our two-stage, high pressure air compressor were coating with carbon so badly that we had to shut down and clean them every three months. Then we switched to Cities Service DC-300 Oil. Now, after nine months, valves are perfectly clean and our carbon problem is gone.

"At the same time we tried Cities Service Pacemaker No. 3 to stop a problem of oil mixing with water on the valve gears and bearings of the steam engine driving our 600 Kilowatt hour generator. The problem ceased and for more than nine months we haven't had to change the oil because it does not emulsify with water.

"We also silenced groaning from the corliss steam valves of this steam engine by switching to Cities Service Optimus No. 3."

If you have a lubrication problem talk to a Cities Service Lubrication Engineer. Chances are he can solve it. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

For More Information Circle No. 807 on Inquiry Card—Page 17



Modern Steam Plant Cuts Costs 21%, Floor Space 33%

A large institution in Syracuse, N. Y. installed a new Foster Wheeler package steam generator which supplied 20,000 pounds of steam per hour for heating purposes. The new boiler replaced two of the three original boilers installed when the institution's facility was constructed. Occupying 1/3 less floor space, the boiler delivers steam at 70-72¢ per 1000 pounds, a fuel saving of 19¢ per 1000 pounds or $13,680 per year.

CIRCLE NO. 402 ON INQUIRY CARD—PAGE 17



Diamond Wheel Expense Cut On Grinding Carbide Tools

A leading Midwestern farm implement manufacturer eliminated diamond wheel usage on some cutters and tools and substantially reduced it on others. It substituted specially developed resin-bonded silicon carbide grinding wheels. These wheels, which sell for a fraction of the price of diamond wheels, are manufactured by Electro Refractories & Abrasion Corp. Other advantages reportedly include fast stock removal (up to 0.025″ per pass) and longer tool life because of fine finish with fewer cracked and chipped blades.

CIRCLE NO. 403 ON INQUIRY CARD—PAGE 17



Change in Fork Truck Fuel Saves $9650 Annually

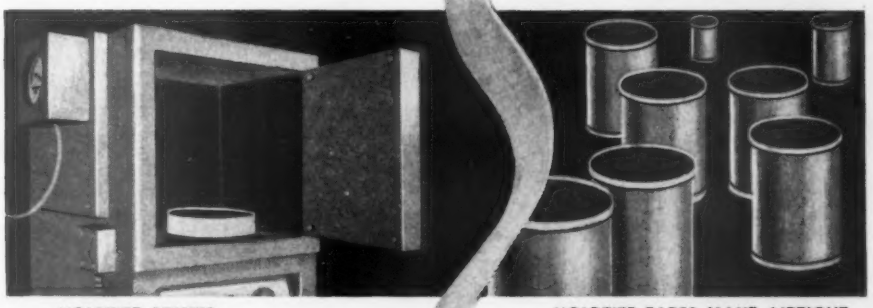
At its Santa Monica plant, Douglas Aircraft Co. operates a fleet of fork lift trucks and other internal plant haulage equipment, amounting in all to 103 units. They used to be powered by gasoline engines. Now propane fuels the engines. Tests have shown that conversion of the gasoline engines with Algas equipment to burn propane effects a saving of $0.085 per engine hour on fork lift trucks and $0.061 on industrial tugs. On all 103 of the plant's units, a total of $9650 will be saved by the conversion.

CIRCLE NO. 404 ON INQUIRY CARD—PAGE 17



HOLDTITE TAPES THAT SUPPORT A MAN'S WEIGHT

HOLDTITE TAPES BAND TOGETHER SPECIAL MERCHANDISING TWO-PACKAGE OFFERS



HOLDTITE RESISTS HIGH TEMPERATURES

HOLDTITE TAPES MAKE AIRTIGHT MOISTURE SEALS FOR CHEMICAL DRUMS



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These amazing tapes are applied with just finger pressure. They bind, hold, mask, reinforce, protect and serve as indispensable tools for hundreds of uses in practically every known industry and service organization. Today, they are as indispensable as the telephone to the American way of life. U. S. Holdtite Tapes are well-named, because they never come loose by themselves; they must be *removed*.

DRAMATIZED ABOVE ARE JUST A FEW OF THE JOBS U. S. HOLDTITE TAPES PERFORM FOR INDUSTRY. THERE ARE COUNTLESS MORE USES—EVERY DAY INDUSTRY CALLS UPON THESE TAPES TO PERFORM NEW AND UNUSUAL WONDERS. WE WOULD WELCOME WORD FROM THE VAST ARMY OF PRESSURE-SENSITIVE TAPE USERS, TELLING OF USES TO WHICH THEY PUT THESE TAPES.

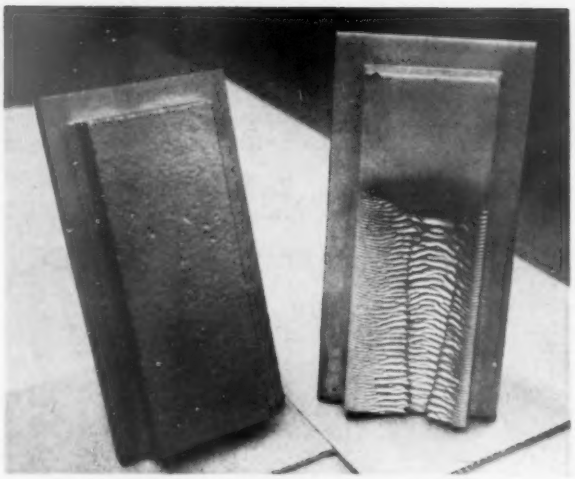
"U. S." Research perfects it..."U. S." Production builds it...U. S. Industry depends on it.

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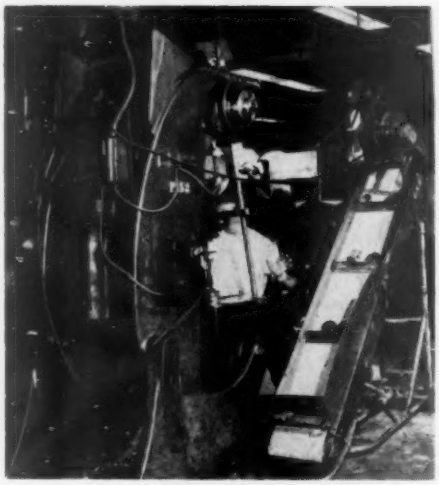
For More Information Circle No. 808 on Inquiry Card—Page 17



Blast Cleaning Machine Liners Last 1500% Longer

Considerable blast cleaning is necessary at the Ross-Meehan Foundries at Chattanooga, Tenn. This makes preventive maintenance necessary and the company decided to use "Long-Lyfe" liner plates in the blast cleaners, made by American Wheelabrator Corp. Whereas the former regular mild steel" end liners lasted only 50 to 100 blasting hours, the new-adopted liner has been in use for 1427 hours and is still in good condition.

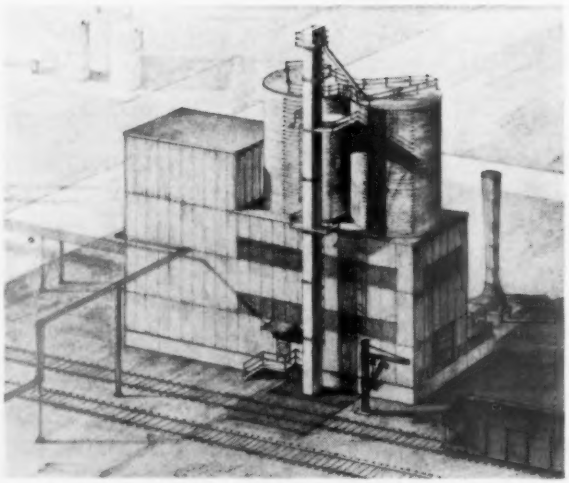
CIRCLE NO. 405 ON INQUIRY CARD—PAGE 17



Conveyor Belt Cost Slashed

An eastern manufacturer found that he was having, every 2 weeks, to replace a woven cotton belt that came as standard equipment on a conveyor. The conveyor carried oily parts from a punch press to another department for finishing. The cotton belt was not resistant to oil and broke down from scuffing and scraping. When a Koroseal belt was substituted for the cotton belt, it was found to be unaffected by the oil and to resist wear, scuffing and everything else that ruined other materials. After more than four months service, it still looked as good as new.

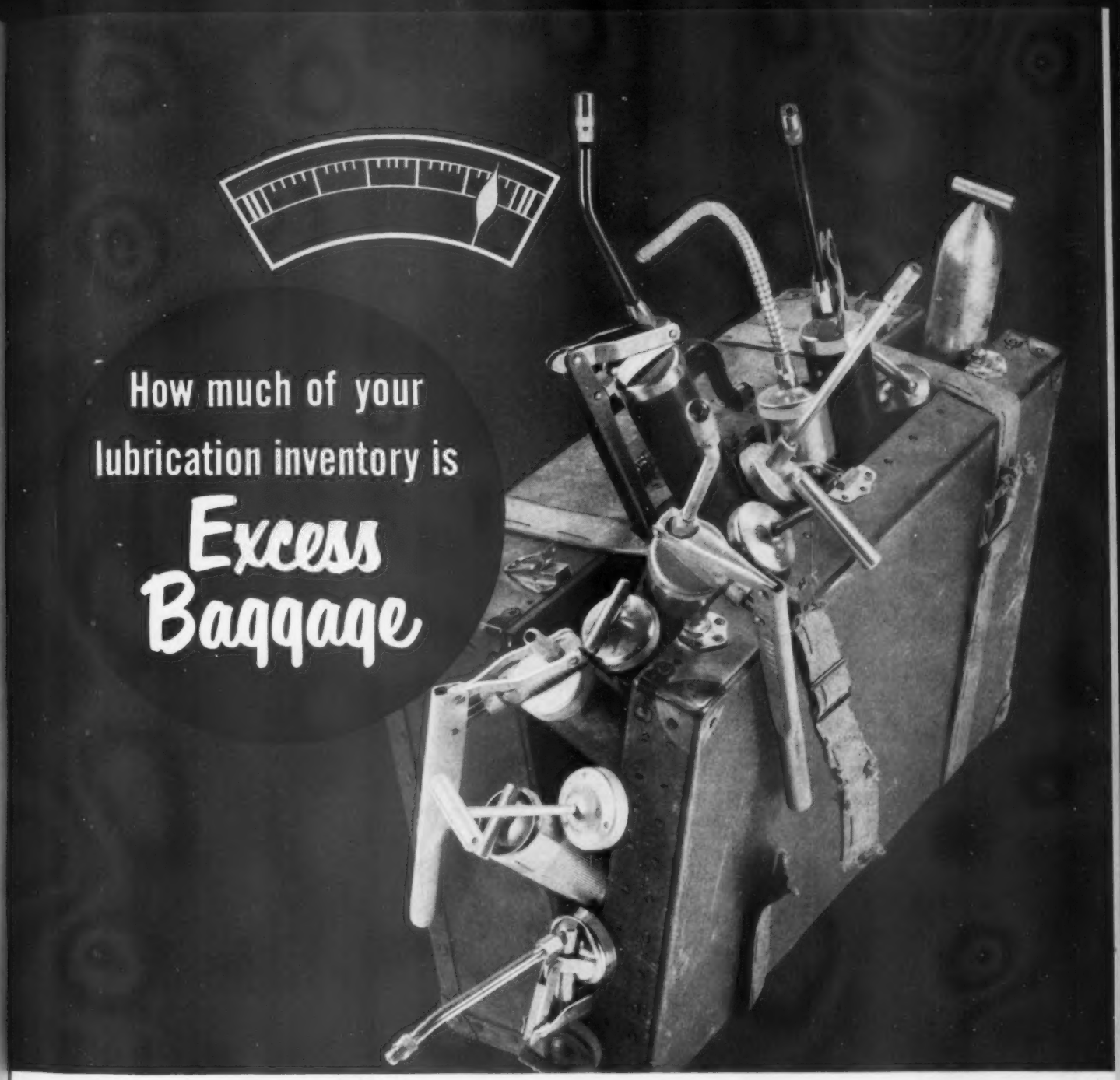
CIRCLE NO. 406 ON INQUIRY CARD—PAGE 17



Steam Costs Chemical Company 35% Less

When Stauffer Chemical Co. constructed a multimillion dollar petrochemical plant in Louisville, Ky., the engineering firm specified and built a modern coal burning boiler plant. It incorporated a fully automatic combustion system, and completely up-to-date coal and ash handling equipment. Results? Fuel and labor costs are at a minimum. Dust control is well within local ordinance limits. Initial cost of the power plant was $6.38 per lb. of steam, compared to an average of $8 to $10 for similar sized plants.

CIRCLE NO. 407 ON INQUIRY CARD—PAGE 17

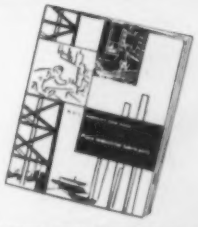


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If you're using more than 6 lubricants in your plant, chances are *Pure Oil's multi-purpose lubricants* can cut costs for you. Here's why: just 6 of these special lubricants are all you need—reduces your inventory . . . reduces chance for error in application (and resulting "down time") . . . and the fewer the man-hours needed for ordering, stocking and application.

Find out how Pure's multi-purpose lubricants can cut costs in your plant. Reverse the charges to your nearest Pure Oil office today.



FREE BOOKLET tells you "How to Simplify and Save." Write The Pure Oil Company, 35 E. Wacker Drive, Chicago 1, Illinois. (Offer limited to Pure Oil's 24-state marketing area.)

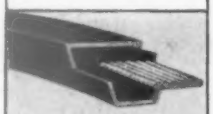
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PURE MULTI-PURPOSE LUBRICANTS

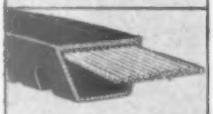
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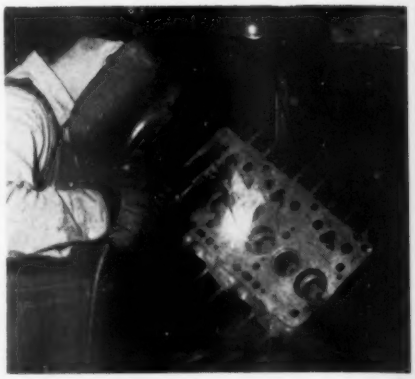

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For More Information Circle No. 810 on Inquiry Card—Page 17

Cast Iron 'Welding Team' Simplifies Maintenance



Worn valve seats on 75 to 100 busses per year of Niagara Frontier Transit System, Buffalo, were expensive in both maintenance and time-loss costs. However, finding that Ni-Rod electrodes of International Nickel, gave a good build-up plus fine machinability simplified the maintenance problem. Now a cast iron "welding team" goes into operation to rapidly repair the worn valve seat as good as new in short order. Thus, giving the Transit company good work at lower costs.

Circle No. 408 on Inquiry Card—Page 17

Central Vacuum Cleaner Cuts Cleaning Chore by 42 Hours



It used to take the Clifton Paperboard Co. 48 hours to clean out the weekly 2 to 3 tons of fine coal which fell through the chain grate into the wind box. A "brigade" of shovel-bucket-wheelbarrow was the usual method. An installation, however, of a Lamson Corp. central vacuum cleaner system reduced the cleaning effort to 6 hours. In addition, it was found the cleaner could also remove the steady accumulations of fly ash in one-half the previous shovel-bucket-wheelbarrow rate.

Circle No. 409 on Inquiry Card—Page 17

we need alloy fittings

Let's call in the Globe distributor



the easy way to solve an inventory problem

Your Globe Welding Fittings Distributor carries and maintains a wide variety of sizes and types of Globe Seamless Welding Fittings. That's why you can hold your own inventory to a sensible minimum — his warehouse can be your warehouse.

Contact your nearest Globe Distributor now — he's the man that can save you time and valuable space.



THE *NATURAL* SOURCE FOR ALLOY FITTINGS

B&W TUBULAR PRODUCTS DIVISION

For the name of your nearest Globe Distributor, call any of these B&W Tubular Products Div. District Sales Offices:

Beaver Falls, Pa. Detroit 26, Mich. Philadelphia 2, Pa.
Boston 16, Mass. Houston 19, Tex. St. Louis 8, Mo.
Chicago 3, Ill. Los Angeles 17, Calif. San Francisco 3, Calif.
Cincinnati 6, O. [illegible]
Cleveland 14, O. New York [illegible]

THE BABCOCK & WILCOX COMPANY
Tubular Products Division—Fittings Department
3839 W. Burnham St. • Milwaukee 46, Wisconsin

FA-5908

For More Information Circle No. 811 on Inquiry Card—Page 17

"S-M-O-O-T-H CUTS

—millions of them—
Are Vital in Our Production"



"That's the kind of service we get from UTICA® Cutters and that's why we've been using them for over 5 years, after having tried numerous other makes," says Mr. George Reinhardt, superintendent of molding for Miraplas Tile Co., in Columbus, Ohio.

Miraplas is one of the nation's leading plastic tile manufacturers. Rigid quality control and dimensional perfection are top considerations at Miraplas. The clean, close cuts of UTICA® cutters contribute vitally to this.

Whether you are working in plastics or in metal, you'll find UTICA® cutters, pliers and adjustable wrenches give you long and efficient service.

Your industrial distributor has UTICA TOOLS® or can get them for you. Over 86 standard styles in cutters and pliers and hundreds of "Specials."



U TI CA ®

THE HALLMARK OF QUALITY
UTICA DROP FORGE & TOOL CORP.
UTICA 4, N. Y.

In Canada: Adlam Tool & Supply Co., Ltd., Montreal
For More Information Circle No. 812 on Inquiry Card—Page 17

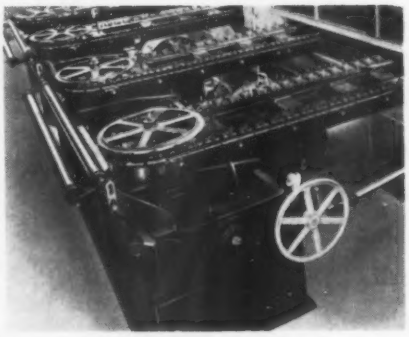
Silicone Fluid's Longer Life Offsets Initial Cost



Tested at temperatures from 300 F to 400 F in the laboratories of the Dow Chemical Co., 5-gallon baths of 710 silicone fluid have been held at operating temperature constantly since June, 1951. To fill one of these baths with hydrocarbon oil cost $3.60 compared to $240.00 for the silicone fluid. But the organic oil fumed, and had other defects which required it to be changed at least once a month at a labor cost of about $7.00. To keep one bath a year cost at least $125.00—half the price of the silicone fluid. The silicone fluid is still unchanged after 3 years and has already saved $140.00.

Circle No. 410 on Inquiry Card—Page 17

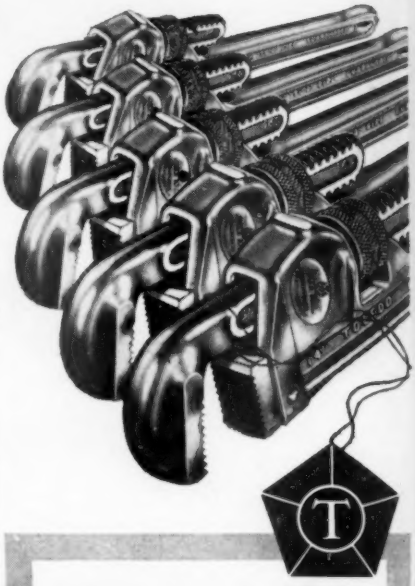
Laminated Plastics Improve Textile Machine Operation



Grade A asbestos-base Phenolite, made by National Vulcanized Fibre Co. was used for bearing surfaces, replacing cast iron rails, of a tentering machine of one of the textile industry's leaders. As a result, the firm has noted improved operation, lower power consumption (due to lower coefficient of friction), reduced downtime and lower maintenance costs. Also, being reversible and easily replaced, the laminated rail lips have a relatively long service life before being discarded.

Circle No. 411 on Inquiry Card—Page 17

ASK THE PIPE FITTER



there is a difference in pipe tools!

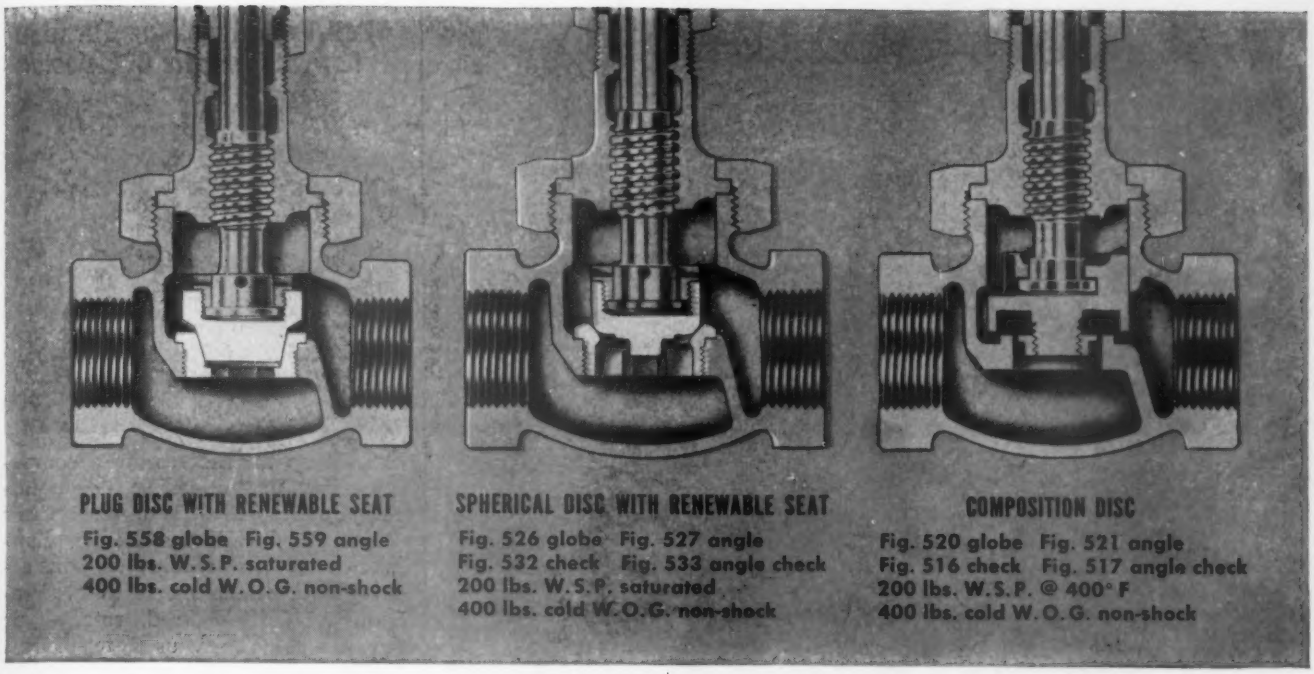
Good pipe tools mean longer service life and greater satisfaction on every job. Toledo unconditionally guarantees every pipe wrench it makes . . . your assurance of maximum service at lowest cost.

Single spring action gives quicker, easier setting on pipe surfaces. Replaceable jaws in every size from 6" to 48". Your supplier knows and stocks Toledo pipe wrenches, pipe cutters, pipe threaders and power machines. Next time try Toledo.

THE TOLEDO PIPE THREADING MACHINE COMPANY

BUILDERS OF THE WORLD'S FINEST PIPE TOOLS
TOLEDO
PIPE THREADERS • PIPE WRENCHES • PIPE MACHINES

For More Information Circle No. 813 on Inquiry Card—Page 17



PLUG DISC WITH RENEWABLE SEAT
Fig. 558 globe Fig. 559 angle
200 lbs. W.S.P. saturated
400 lbs. cold W.O.G. non-shock

SPHERICAL DISC WITH RENEWABLE SEAT
Fig. 526 globe Fig. 527 angle
Fig. 532 check Fig. 533 angle check
200 lbs. W.S.P. saturated
400 lbs. cold W.O.G. non-shock

COMPOSITION DISC
Fig. 520 globe Fig. 521 angle
Fig. 516 check Fig. 517 angle check
200 lbs. W.S.P. @ 400° F
400 lbs. cold W.O.G. non-shock

Choose the OIC disc-seat combination of greatest reliability

The modern OIC "500 Line" provides a choice of 3 bronze globe valve designs to meet specific sets of operating conditions.

You can rely on all three. But you will improve over-all globe valve performance by selecting the design which especially fits your particular operating requirements.

Base your selection on these facts

Plug disc with renewable seat—Use where throttling is required on services up to 550°F. Tapered disc and seat are stainless steel, hardened to 500 Brinell. They resist erosive and abrasive wear resulting from throttling . . . even crush foreign particles to effect tight closure without damage to seating surfaces. Seat and disc may be reground or replaced.

Spherical disc with renewable seat—Use in general wide-open and closed service, up to 550°F, where frequent cycles of operation will be required. Seat and disc are copper-nickel alloy, resistant to corrosion and galling. Disc and seat mate by line contact assuring positive tight closure on any fluids. Both seat and disc may be reground or replaced.

Composition disc—Normally furnished with 8E disc—suitable for steam, hot water, oil and gas—designed for use in wide open or closed position. This relatively soft disc material permits disc to effect tight closure in spite of small scratches or particles on the seat. This valve may be used for a number of services by fitting it with discs suitable for the fluids to be handled. Use of slip-on type disc-holders simplifies disc replacement.

Stems on all "500 Line" valves are machined from special OIC 40-alloy which will not gall or seize. The complete "500 Line" includes bronze globe, angle and check valves, with many parts interchangeable.

For choice of design, high quality and maximum performance specify the complete "500 Line" when you order from your OIC Distributor.

Write for Form No. 1001 which describes the "500 Line" more fully.

OIC
FOUNDED 1883

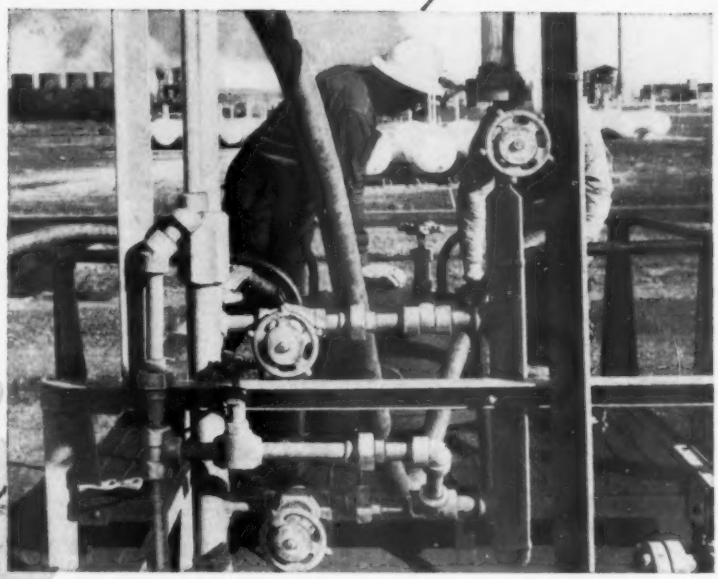
THE OHIO INJECTOR COMPANY • WADSWORTH, OHIO

VALVES | FORGED & CAST STEEL, LUBRICATED PLUG, BRONZE & IRON

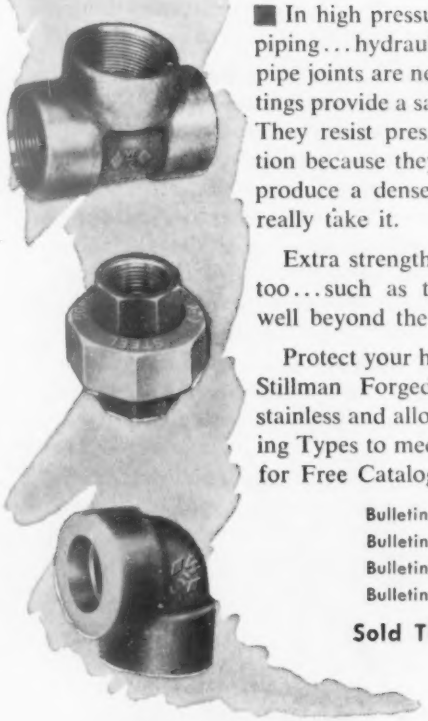
For More Information Circle No. 814 on Inquiry Card—Page 17

WATSON-STILLMAN

FORGED STEEL FITTINGS



WORK BEST...under pressure



■ In high pressure steam lines... process liquid and gas piping... hydraulic fluid lines... wherever strong, tough pipe joints are needed, Watson Stillman Forged Steel Fittings provide a safety factor against costly piping failures. They resist pressure, heat, corrosion, shock and vibration because they're drop-forged of high quality steel to produce a dense, tough, forged-fiber structure that can really take it.

Extra strength is built into W-S fittings in other ways too... such as the heavy reinforcing bands extending well beyond the threads or sockets.

Protect your high pressure piping system with Watson-Stillman Forged Steel Fittings. Available in carbon, stainless and alloy steels, in Screw-End and Socket-Welding Types to meet your service requirements. Send today for Free Catalogs.

Bulletin A3-50—Forged Steel Fittings
Bulletin S-1-55—Stainless and Alloy Fittings
Bulletin U-1—Forged Steel Unions
Bulletin S-3-55—150 lb. Stainless Fittings

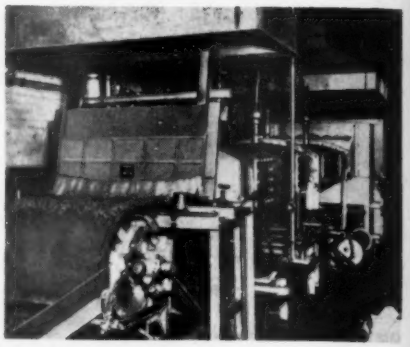
Sold Through Leading Distributors

WATSON-STILLMAN FITTINGS DIVISION

H. K. PORTER COMPANY, INC.
Roselle, New Jersey

For More Information Circle No. 815 on Inquiry Card—Page 17

Belt-Type Annealing Furnace Lowers Numbers Of Rejects



To keep themselves more competitive while increasing production and quality, Elco Tool and Screw Corp., Rockford, installed a Sunbeam Corp. belt-type, continuous atmosphere, annealing furnace. Previously, a direct-fired, rotary-type furnace had been used to process the company's screws, bolts, rivets, etc. The belt-type furnace reduced rejects due to scratching and other surface damage caused by tumbling action.

Circle No. 412 on Inquiry Card—Page 17

Airtube System Cuts Paper Handling Time by 95%



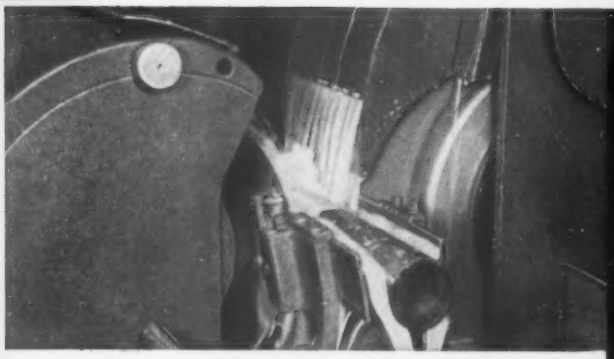
A Lamson Corp. Airtube installation cut credit checking time of orders from 2 hours to 3 minutes for Swank, Inc. In addition to time saved, the new system freed on full-time and one part-time messenger for more productive work. As a final measure of its value, Swank found the credit supervisor reduced daily trips to customer service and billing departments by more than 80%. The system paid for itself in one year.

Circle No. 413 on Inquiry Card—Page 17

Molds Formerly Soaked Overnight Now Cleaned in About an Hour

Steel molds used by an Indiana maker of rubber products ac-

(*Please turn to page* 452)



INCREASED DETERGENCY—prevents loading and glazing of grinding wheels, prolongs wheel life.



NEW S.E.C.O.—pours and mixes easily... has better operator acceptance... keeps parts and machines cleaner.





Industry's most widely used soluble cutting oil continues to give highest machining efficiency

OVER 100 MILLION GALLONS OF S.E.C.O. EMULSIONS USED IN '54

The reasons? Simple.
Primarily, industry has faith in Sunoco Emulsifying Cutting Oil. Its high machining efficiency has proven itself over a period of years. S.E.C.O. is the original 100% petroleum emulsifying cutting oil. 'Way back in 1916, machinists started using S.E.C.O.

Constantly improving in quality over the years, S.E.C.O. is now better than ever. During 1954 new refining facilities once more improved industry's most widely used cutting oil... gave users even higher machining efficiency ...better finishes... longer tool life... increased production.

Test the new S.E.C.O. in your own plant. Notice how its high detergency and purity keeps tools, parts and machines clean... how easily it mixes in hot, cold or hard water. Notice, too, how S.E.C.O. cuts operating costs... improves rolling operations, hot and cold washing, and rustproofing.

See for yourself why Sun's S.E.C.O. continues to be the leading emulsifying cutting oil in the country today. For information, call your nearest Sun office or write SUN OIL COMPANY, Philadelphia 3, Pa., Dept. PG-6

SUNOCO

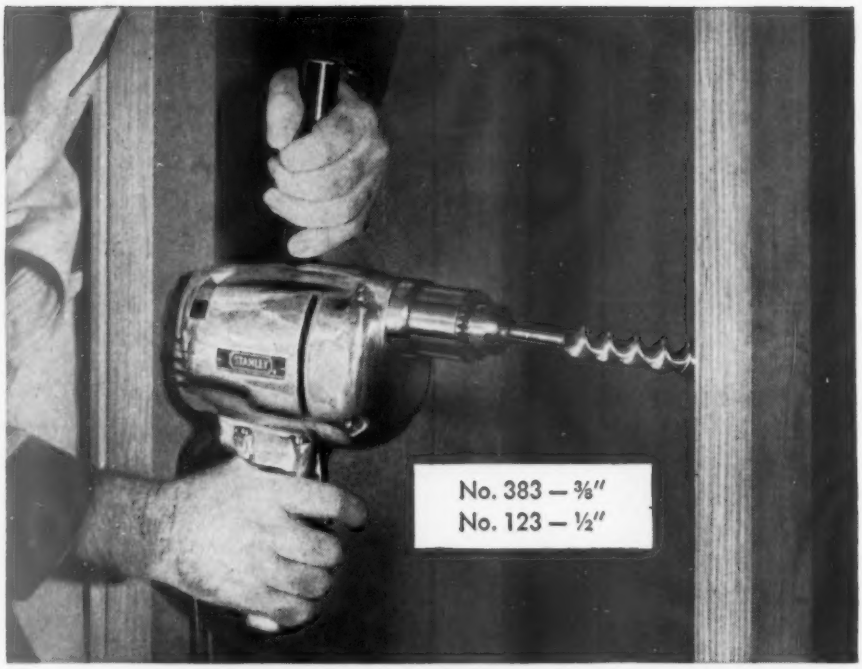
INDUSTRIAL PRODUCTS DEPARTMENT

SUN OIL COMPANY

PHILADELPHIA 3, PA.

IN CANADA: SUN OIL COMPANY LTD., TORONTO AND MONTREAL

For More Information Circle No. 817 on Inquiry Card—Page 17



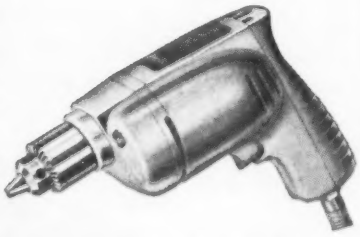
New Stanley drills–compact and rugged

Maintenance men especially, welcome these new short drills, ⅜″ and ½″ capacity. Here, at last, are drills they can take into crawl spaces, behind heavy machinery, in any tight corner, and still do the job.

These heavy duty drills measure only 12¼″ and 12⅛″ with spade handles attached . . . with handles removed as shown (a quick, easy job) they come down to 9⅞″ and 9¾″. Pipe handle also removable. Full anti-friction ball and needle bearings . . . alloy steel gears . . . easy wipe, high polish Stanley finish.

24 Stanley Drills for every kind of job. Let your industrial distributor show you the line. Or write Stanley Electric Tools, 876 Myrtle St., New Britain, Conn. Ask for Catalog 12.

For lighter, all around drilling there's the Mighty Midget No. 230 Series. Light, well balanced and powered for rugged work.



Six models with no load chuck speeds of 5,000 to 600 r.p.m. to choose from—each one a fistful of power. Anti-friction bearings, trigger switch with locking device, aluminum die-cast housing with high polish Stanley finish.

STANLEY Electric Tools
A Division of The Stanley Works

ELECTRIC TOOLS • TOOLS • HARDWARE • STEEL • STEEL STRAPPING
For More Information Circle No. 818 on Inquiry Card—Page 17

(*Continued from page 448*)

cumulated bits of rust and rubber deposits. Even after an overnight soak in a solvent cleaner, the molds often had to be brushed up to an hour and a half to dislodge the hardened particles of soil and rust. The molds are now soaked in an alkaline derusting solution made by Oakite Products, for periods of 30-60 minutes. A light brushing, for 15 minutes or less, removes every particle of rust and rubber deposits.

Circle No. 414 on Inquiry Card—Page 17

$18,502 Saved in 8 Years of Floor Plan Changes



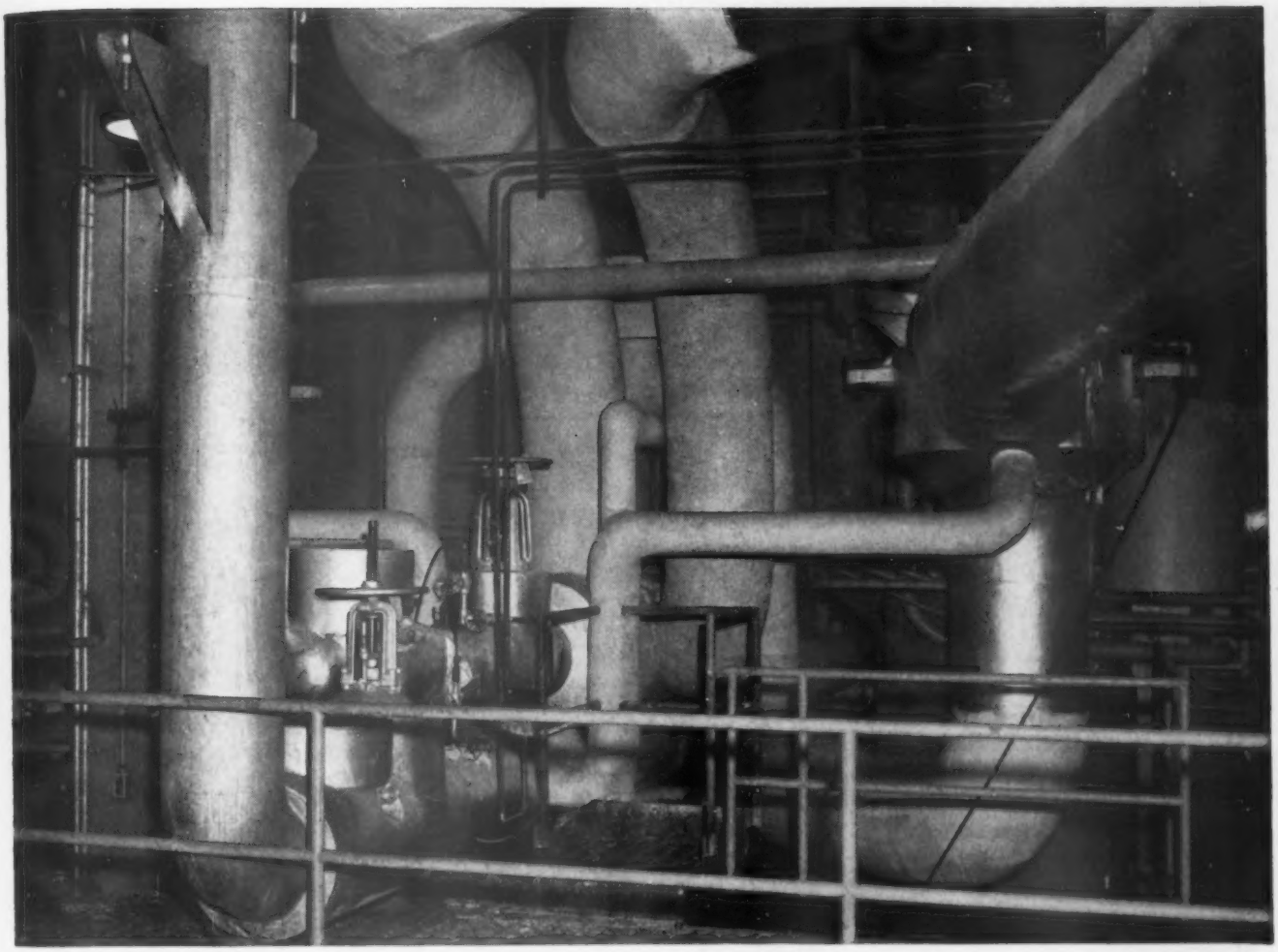
During the past 8 years, the rapid expansion of Permacel Tape Corp., New Brunswick, N. J., was requiring costly and time consuming space changes. However, easily moved Hauserman walls were used to provide the flexibility for the constantly changing floor plans. As a result, Permacel has found that the movable walls have saved them $18,502 over comparable rearrangements of ordinary walls. Plus, the fact that little time is lost in work interruption through dirt, noise, etc.

Circle No. 415 on Inquiry Card—Page 17

Mere $600 Investment Completely Eliminates Dermatitis Problem

A few years ago, Manning, Maxwell & Moore, Inc., Stratford, Conn., was bothered with a rash of dermatitis, about 10 to 12 cases a year. Transferring the operator to another job, for 6 months, was expensive for the company and upsetting for the worker. Finding ineffective flushing and irregular cleaning of the coolant sump pump the "guilty party", the company switched to an all-chemical machine cleaner to purge the sump system. Scrapping the old system and investing a mere $600 in new equipment completely eliminated the dermatitis problem.

Circle No. 416 on Inquiry Card—Page 17



A COMBINATION INSULATION. A 2 inch thickness of K&M Hy-Temp, together with a 2 inch thickness of K&M "Featherweight" insulates the pipe and main throttle valve shown. This equipment at the Meramec Power Plant, Union Electric Company of Missouri, St. Louis, operates at 950°F. Insulation Contractor: Armstrong Cork Company.

More steam at less cost with K&M high pressure insulations

Heat losses are kept to a minimum when K&M Insulations are used. Steam holds its temperature . . . users get the dollar savings that come from highly efficient conservation of heat.

K&M "Featherweight"® 85% Magnesia and K&M Hy-Temp Insulation last the life of the equipment they serve. They withstand moisture, vibration, and frequent temperature changes. Both are supplied in various sizes and thicknesses. When used together, these materials—with staggered joints—eliminate the heat loss that normally occurs in single-layer installations when expansion causes joints to open. These insulations are widely used —in power stations, hospitals, steamships, food processing plants—wherever and whenever exacting steam temperature control is a must.

Efficiency to 1900°F. K&M Hy-Temp Insulation is used on applications where temperatures rise to 1900°F. It's made of diatomaceous silica combined with heat-resistant mineral fillers and asbestos fiber. Usually, it's applied in combination with K&M "Featherweight" 85% Magnesia.

Efficiency to 600°F. K&M "Featherweight" 85% Magnesia is used for effective insulation of piping and equipment with temperatures up to 600°F. 85% of this material is composed of basic carbonate of magnesia, the remainder of asbestos fiber.

Efficiency to 450°F. K&M "Featherweight" Water-Resistant Magnesia Insulation is used on equipment with temperatures up to 450°F. It is especially effective where severe water exposure may damage insulation, or where high humidity and moisture are present.

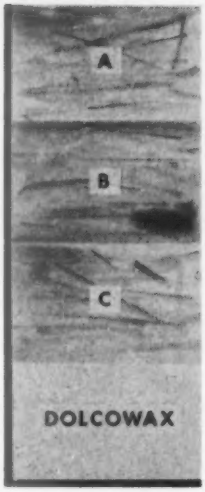
Don't delay—act today! When you save on heat losses, you save on operating expenses. For further information—and the name of your K&M distributor, who is an experienced applicator, write to Keasbey & Mattison Company.

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

K&M best in asbestos®

For More Information Circle No. 819 on Inquiry Card—Page 17

"TRAFFIC PANEL" TEST PROVES
DOLCOWAX
BEST FOR LONG-LASTING FLOOR BEAUTY!



THE TEST—four sections of flooring, each panel prepared with a different floor wax. All panels subjected to heavy traffic . . .

THE RESULTS—The DOLCOWAX panel retained markedly finer lustre—its beauty actually increased with wear—and it retained scuff and scratch resistance to a greater degree. DOLCOWAX *premium quality* floor wax is most economical in the long run. Ideal for "second coating"—the second coat integrates with the first . . . no "crawling" or "puddling" to prevent an even, uniform film.

IMPORTANT: The slip-resistance feature built into DOLCOWAX permits a soft, lovely finish with safety protection! Has Underwriters Laboratories approval, of course.

When preparing floors for waxing, use CINDET, the Dolge all-purpose cleaner, for more complete stripping of old wax film.

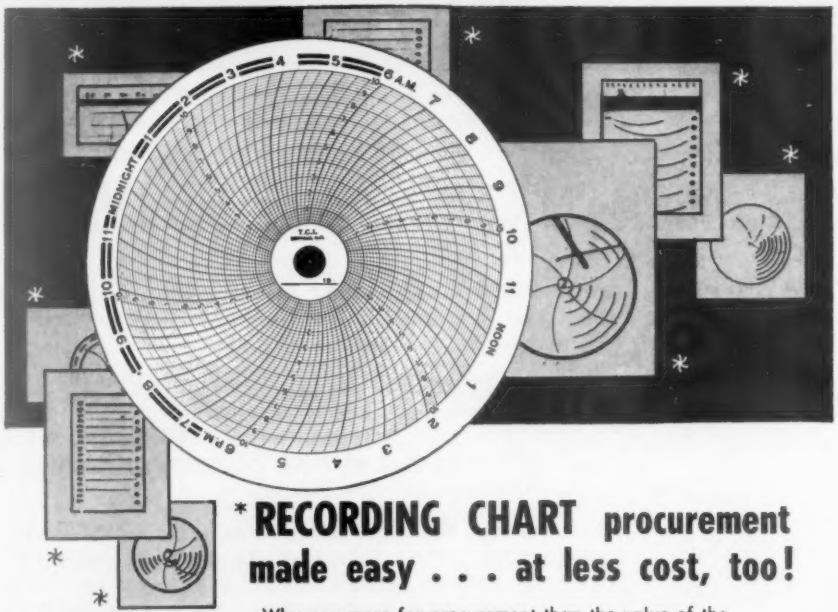
Write for literature; consult your DOLGE Service Man on your floor finishing problems.

FOR FREE SANITARY SURVEY OF YOUR PREMISES SEE YOUR DOLGE SERVICE MAN

dependable DOLGE

WESTPORT, CONNECTICUT

For More Information Circle No. 820 on Inquiry Card—Page 17



*RECORDING CHART procurement made easy . . . at less cost, too!

Why pay more for procurement than the value of the charts involved? Make use of Technical's chart service . . . where one purchase order will bring you any of 8000 different circular or strip recording charts, — many right from inventory. E. I. DuPont de Nemours does . . . so does the Mayo Clinic, and even Macy's . . . so do over 2000 other "Blue Chip" firms. Catalog 55 explains services . . . shows samples . . . write today.



Catalog 55



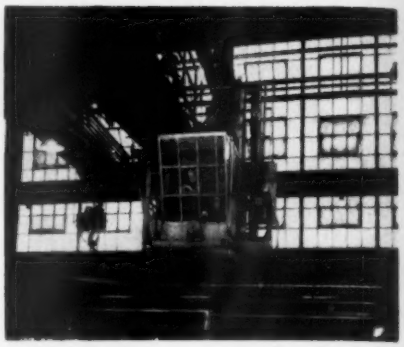
TECHNICAL CHARTS INCORPORATED

188 VAN RENSSELAER ST. BUFFALO 10, N. Y.

Nationally Represented by TECHNICAL SALES CORPORATION
16599 Meyers Road Detroit 35, Michigan

For More Information Circle No. 821 on Inquiry Card—Page 17

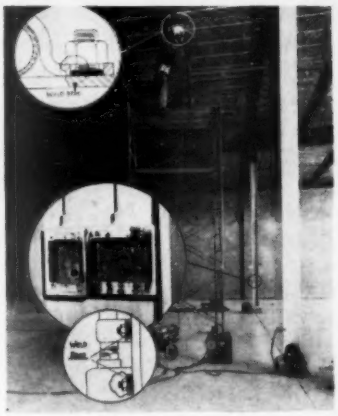
Air Conditioning Pays Off



Taylor Forge & Pipe Works, Cicero, Illinois, improved efficiency and solved a morale problem with an industrial air conditioner made by Dravo Corp. The operator of a crane cab working over heat treating ovens was subjected to temperatures of 140-160 F plus dirt and fumes. Frequent reliefs were essential since the operator could remain in the cab just long enough to remove material from a furnace. Air conditioning the cab has permitted increased output, in addition to improving morale.

Circle No. 417 on Inquiry Card—Page 17

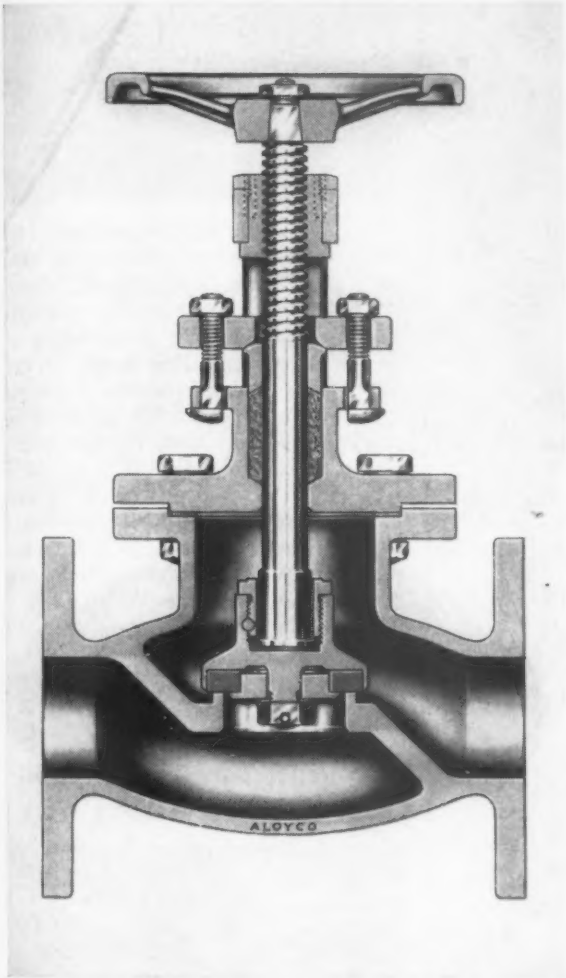
Stud-Welding Gives Electrical Contractor Speed, Low Cost



Six new warehouses recently completed at the U. S. Army's Memphis (Tenn.) General Depot called for a major fastening operation in hanging 140,000 ft of electrical conduit, 4020 outlet and switch boxes and 3726 fixtures from structural steel ceiling and wall members. Choosing among drilling and punching, powder-actuated bolting, and stud welding, the contractor, Shelby Electric Co., picked the latter. Finding it faster than the drilling and punching, he also found that the KSM Products stud welding tools and materials were ⅓ less than power-actuated equipment.

Circle No. 418 on Inquiry Card—Page 17

Aloyco valves with renewable Teflon discs out-last metal-to-metal seated valves



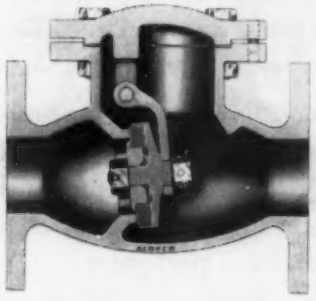
In handling volatile or elusive fluids, the slightest corrosion of a metal valve seating surface or packing gland is bound to cause leakage.

With Teflon discs, however, this leakage is prevented because of Teflon's ability – even when adjoining metal is slightly corroded – to form a gas-tight seal under compression. Add to this the fact that Teflon discs and seats are renewable when worn and you can see why we're using them in so many Aloyco valves.

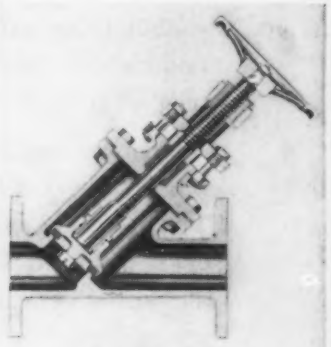
Teflon, the new DuPont plastic, has outstanding resistance to virtually all corrosive chemicals up to 550° F. It's used as bonnet gasket, packing and seating material in many Aloyco valves specially designed and constructed to take advantage of its remarkable properties.

You can specify Teflon in plain or jacketed, screwed end or flanged Globe, Y, Angle, Swing Check, Needle, Plug Gate or Sampling valves in a variety of alloys and sizes. Send coupon for details.

ALOYCO GLOBE VALVE features special holder for renewable Teflon disc to prevent force-out even under heavy overloads.



ALOYCO SWING CHECK VALVE offers greater seat tightness for tighter closing and longer life with renewable Teflon disc.



ALOYCO Y VALVE is easier to maintain and repair, thanks to Teflon disc. Also readies this valve for vacuum service. **5.4**



Alloy Steel Products Company, Inc.
1312 West Elizabeth Avenue
Linden, New Jersey

Gentlemen:

I am interested in Aloyco Teflon seated valves. Please send me a free copy of your Bulletin No. 6.

Name_____

Firm_____

Address_____

City_____ Zone_____ State_____

Longer Lasting
ALOYCO
VALVES
1ST IN CORROSIVE SERVICE



For More Information Circle No. 822 on Inquiry Card—Page 17

with KEX wiping towels...



"I decided long ago to stop buying scrap rags and waste by the pound and switch to Kex wiping towels because a lot of the stuff we were getting wasn't usable. It had no uniformity and the men had to pick and choose the right piece for every job. That isn't true with Kex—every square inch is usable.

"After the first few months of using Kex Service my month-end cost for wipers was down substantially! The men have a uniformly-sized, absorbent towel for every job. And we don't run the risk of scratching or damaging delicate precision machinery."



YOU DON'T BUY A THING—just pay a low monthly rental. Kex towels are distributed nationally—for complete information, see your Classified Telephone Directory for nearest Kex distributor, or write Kex National Service, 295 Fifth Avenue, New York 16, N. Y.

"KEX" NATIONAL SERVICE

REG. U.S. PAT. OFF.

It isn't Kex unless it's imprinted with the Kex name

For More Information Circle No. 823 on Inquiry Card—Page 17

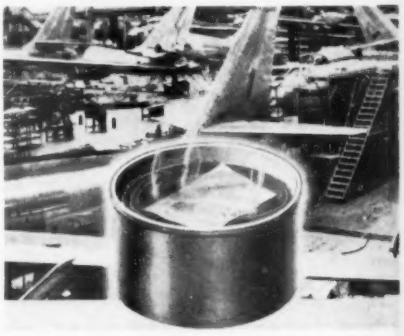
Crane Scale Lowers Weighing Costs Of Huge Parts By 12%



Before shipping assemblies and housing of turbines, generators, etc., from its West Lynn, Mass., plant, the General Electric Co. weighs them on an electric crane scale of 50-ton capacity. Previously, huge parts were hoisted onto a railroad flat car and hauled 0.4 miles to a track scale, and then hauled back. Since the installation of the Baldwin - Lima - Hamilton scale, there have been time savings of at least 20% for an average of 8 weighings a day. In all, costs of weighing have been reduced by some 10 to 12%.

Circle No. 419 on Inquiry Card—Page 17

Production Card Takes Hot Oil Bath; Speeds Processing Work



A tough problem for United Aircraft Corp. was that production cards on parts in progress had to withstand a severe dunking in hot oil. Several grades of stock were tried, each failing to retain substance and legibility. Finally, Resistall Index Bristol of L. L. Brown Paper Co. was given the oil submersion test, and came through. As a result, United Aircraft has realized incalculable savings due to better processing and handling of parts.

Circle No. 420 on Inquiry Card—Page 17

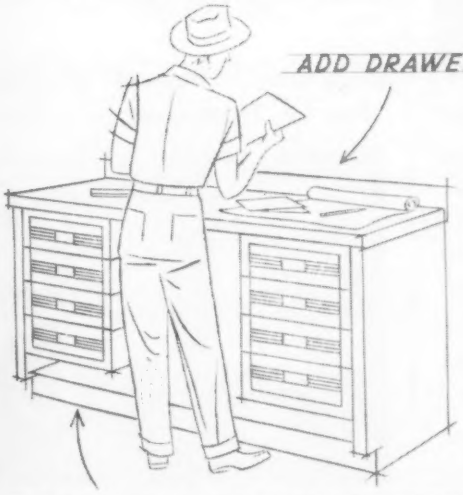
HOW TO USE STANDARD HALLOWELL CABINET BENCHES AND ACCESSORIES IN PLANT MODERNIZATION



MODEL 608 - STEEL TOP, STEEL BACK PANEL, BOTTOM SHELF, AND CABINET TYPE BENCH LEGS

ADD TOP SHELF

ADD DRAWER TIERS





ASSEMBLE THEM IN CONTINUOUS LINE

USE THEM AS INDIVIDUAL BENCHES

4 TOP MATERIALS, 3 LENGTHS, 4 WIDTHS
4 HEIGHTS - ALL STANDARD

ADD SLIDING DOORS AND SHELVES



Standard Units · Standard Accessories · Sturdy Steel Construction · Stocked by Leading Shop Equipment Dealers · Send for "Benchery" – a Humorous Booklet on What You Can Do with Hallowell Benches · Hallowell Shop Equipment Division, Standard Pressed Steel Co., Jenkintown 31, Pa.

HALLOWELL SHOP EQUIPMENT DIVISION

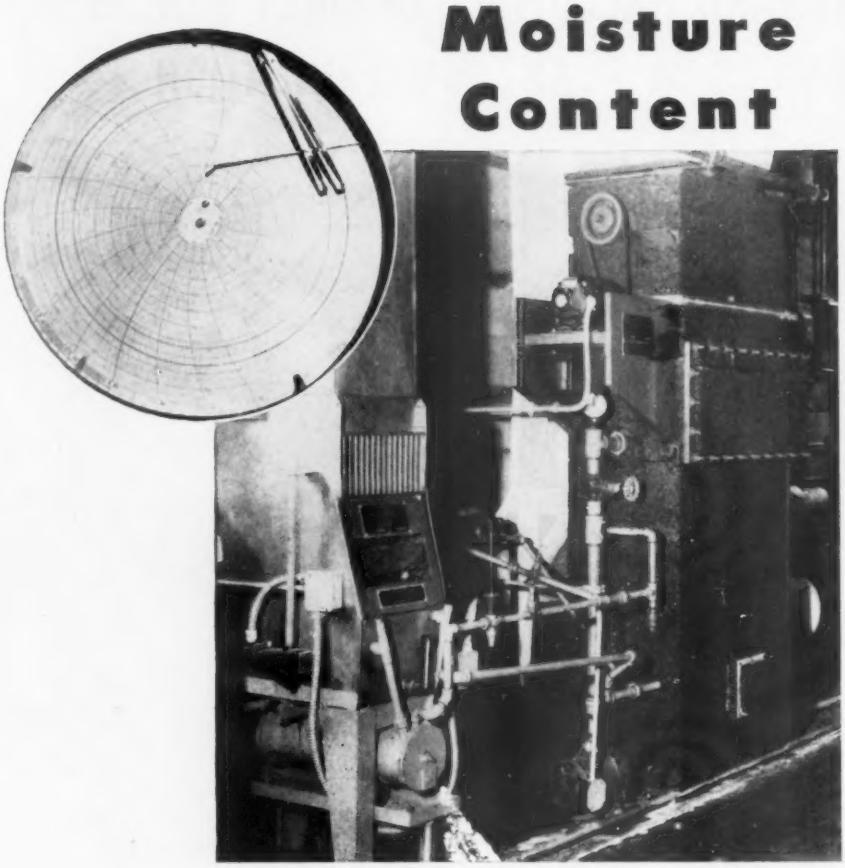
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JENKINTOWN PENNSYLVANIA

BENCHES (CABINET, WORK, UNIT) • STOOLS AND CHAIRS • SHOP DESKS • TOOL STANDS AND CABINETS • DRAWERS, DRAWER TIERS • STEEL CARTS • SHELVING

For More Information Circle No. 824 on Inquiry Card—Page 17

EXACT CONTROL of Moisture Content



. . . To Improve Your Product or Protect Your Materials or for Processes or Tests

● This Niagara Air Conditioning Method dries air directly and measurably, using a moisture-absorbing liquid spray. It makes humidity control a separate function from lowering or raising temperatures and gives you precise control with thermostats alone; no moisture-sensitive devices are needed. You have simpler, more trustworthy, less expensive control instrumentation. Niagara precise-control installations have the best record for reliability.

Niagara Air Conditioning provides you with any temperature and relative humidity you need. Using "Hygrol" absorbent, it is not expensive to operate, saving the refrigeration commonly used to condense moisture and making re-heat unnecessary in most cases. It gives large capacity with compact, easily-maintained equipment. Ask for Descriptive Bulletins #112 and #121. Address Dept. PU.

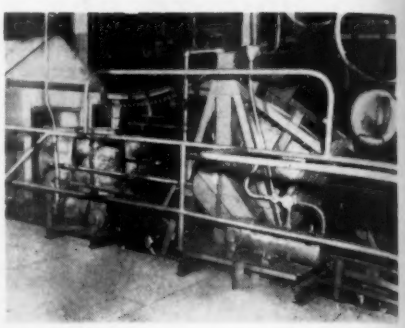
NIAGARA BLOWER COMPANY

405 Lexington Ave. New York 17, N. Y.

District Engineers in Principal Cities of U. S. and Canada

For More Information Circle No. 825 on Inquiry Card—Page 17

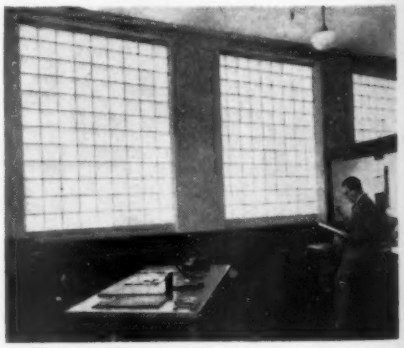
New Industrial Washer Spray Cleans 120 Drums per Hour



A complex cleaning problem involving the washing of steel drums at the Parlin, N. J., plant of the Hercules Powder Co. has been solved with a machine designed by Industrial Washing Machine Corp. Using powerful sprays, located at the top and bottom as well as the sides of the machine, Industrial has produced a highly efficient and rapid drum cleaner. It washes and rinses 120 drums per hour. While the particular model at Hercules uses steam, the washer can also be installed with a gas or electric heating system.

Circle No. 421 on Inquiry Card—Page 17

Glass Blocks Replace Windows; Pay for Themselves in 1 Year



The solution to the problem of broken windows, as well as several others, came to light when the S. Twitchell Co., Camden, N. J., explored the possibility of installing an air conditioning unit. They found that the installation of $5000 of glass blocks oculd be made to pay for itself with one year's saving effected by the change from old-type sash windows. In addition to window breakage, the firm had been faced with warpage, cracked plaster and the usual maintenance of window washing. With the air conditioning unit, all the windows were necessary for was light.

Circle No. 422 on Inquiry Card—Page 17



Two views of Heald-Borematic boring machines equipped with U. S. PowerGrip TIMING Belts and pulleys. Note the teeth in the belts and in the pulleys. They transmit the power of 2 motors on each machine, and are subjected to tremendous shock loads.

A leading auto plant reaps savings in production time and labor... by installing U. S. *PowerGrip* "TIMING"® Belts

By changing its power transmission (on Heald-Borematic machines) to U. S. PowerGrip TIMING Belts, the auto plant gained these immediate mechanical benefits:

- Pulleys and belts were reduced in number on each machine from 6 to 4.
- Previous belts had to be replaced every 2 weeks. U. S. PowerGrip TIMING Belts have been on the job for 3 months—yet show *no sign of wear!*
- The machines are now far more efficient. They deliver a more uniform speed and, because they do not stall, they give a better finish to the work.

So convincing was the saving in production time and the reduction in maintenance and replacement of parts, that the management of the auto plant has now equipped all Heald-Borematics with U. S. PowerGrip TIMING Belts and pulleys.

A development of United States Rubber Company, the U. S. PowerGrip TIMING Belt has grooves which fit into teeth in the pulleys—with perfect non-slip grip and a uniform transmission of power. This belt has revolutionized power transmission in hand tools, lathes, drill presses, saws, electric typewriters and thousands of other applications. The absence of metal-to-metal contact makes lubricants and oil-retaining housings unnecessary. The smaller pulleys permit very short centers and high ratios. Light weight permits very high speeds, yet with its non-slip grip the belt can handle speeds so slow as to be almost imperceptible to the eye. Because there are no friction-creating joints, no slippage, no lubricated drag, the U. S. PowerGrip belt has an efficiency close to 100%. Obtainable at any of our selected distributors or 27 "U. S." District Sales Offices or write address below for free catalog.

"U. S." Research perfects it . . . "U. S." Production builds it . . . U. S. Industry depends on it.

UNITED STATES RUBBER COMPANY

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Hose • Belting • Expansion Joints • Rubber-to-metal Products • Oil Field Specialties • Plastic Pipe and Fittings • Grinding Wheels • Packings • Tapes
Molded and Extruded Rubber and Plastic Products • Protective Linings and Coatings • Conductive Rubber • Adhesives • Roll Coverings • Mats and Matting

For More Information Circle No. 826 on Inquiry Card—Page 17

"WE'VE FOUND THIS LUBRICANT BEST FOR FISH PROCESSING MACHINERY"



says HIGH SEAS Tuna Packing Co., Inc. of California

"We have used LUBRIPLATE Lubricants for over 15 years and find they do everything. They keep fish processing machinery from seizing and keep it easy to take apart and reassemble. This is very important in food processing plants. Because LUBRIPLATE Lubricants are so effective, economical and long-lasting, they save us time and money."

Earl Lockhart
Master Mechanic

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose... LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.

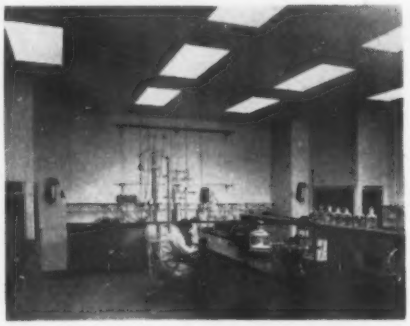


For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



For More Information Circle No. 827 on Inquiry Card—Page 17

Movable Walls Save $30,299 in 10 Years on Repainting



Repainting walls would have been a considerable maintenance expense during the past 10 years for Firestone Research Laboratory. Not tolerating dirt in any form, it has been a practice to wash and rewash walls and partitions to maintain the cleanliness necessary for research work. After 10 years of this repeated washing, Firestone has found that its Hauserman movable walls still do not require painting. Thus, on the basis of repainting at normal intervals, Firestone has saved $30,299 in painting costs over the 10 year period.

Circle No. 423 on Inquiry Card—Page 17

New Heat Treating Trays Stop Breakage; Save 96% in Costs



When ceramic trays carried tool steel parts through furnace readings up to 2300F, the Syracuse Heat Treating Corp., encountered trouble. The trays were brittle and shattered at the slightest bump. During a 5 month production run, breakage cost was $292.50. Using three Inconel trays, the firm found after 5 months that all three were still in use. They had saved over $280.00—a reduction of 96% in the cost of trays for heat treating small tools.

Circle No. 424 on Inquiry Card—Page 17

"THIS LUBRICANT CUT BEARING REPLACEMENTS OVER 40%"



says—HANOVER BUILDING SUPPLY CO. of Hanover, Pa.

"Before using LUBRIPLATE, we replaced the wheel bearings in over 50% of our trucks each year. Since using it, bearing replacements have dropped to less than 10%. We have also been able to increase periods between chassis lubrications from 500 to 2000 miles. We are very happy over our change to LUBRIPLATE, and heartily recommend it to fleet operators interested in saving money."

HANOVER BUILDING SUPPLY CO.
C. O. Albright, Pres.

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

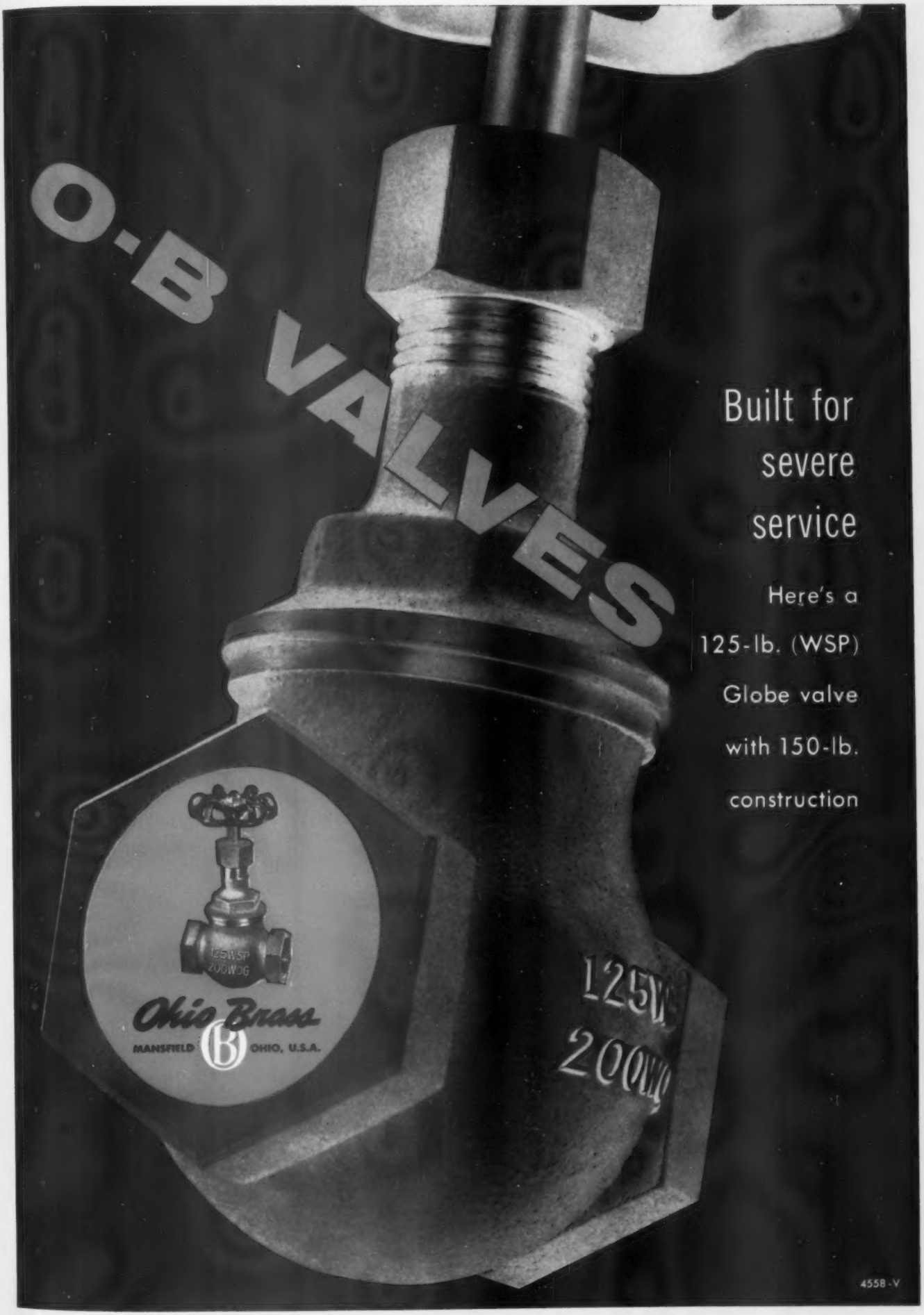
LUBRIPLATE is available in grease and fluid densities for every purpose... LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.



For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



For More Information Circle No. 828 on Inquiry Card—Page 17



For More Information Circle No. 829 on Inquiry Card—Page 17



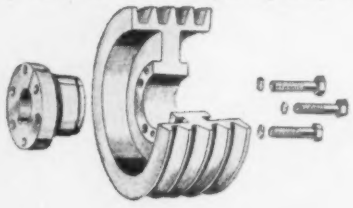
That's right! It's no costly, time consuming job to remove or mount Wood's "Sure-Grip" Sheaves and Bushings. It's the simplest rim and bushing combination on the market today!

The "Sure-Grip" Sheave and Bushing is mounted as one unit. Line up and tighten just 3 cap screws. Completely split-tapered bushing maintains a positive, "pressure grip" on the shaft for the full length of the bushing. "Sure-Grip" can't work loose.

For removal just back off one cap screw part way to hold bushing in sheave during removal. Remove remaining cap screws and use two of them as jack screws.

Sheaves are of highest quality grey iron, accurately machined with grooves cut in proper relation to one another. Use "Sure-Grip" sheaves on original equipment as an added sales feature or as a time and money-saver in your plant operation. There are bushings for every bore.

So keep your production on the go! Specify Wood's "Sure-Grip" Sheaves.



Wood's

T. B. WOOD'S SONS CO.

CHAMBERSBURG, PA.

CAMBRIDGE, MASS. • NEWARK, N. J. • DALLAS, TEXAS • CLEVELAND, OHIO

For More Information Circle No. 830 on Inquiry Card—Page 17

Scrapped $1600 Bucket Salvaged



A raw materials producer discarded a manganese and alloy steel bucket due to weld failure. The high heat of fusion welding had caused embrittlement and a new bucket was purchased for $1600 rather than risk a breakdown in operations. Then a company welder suggested repairing it with low input process. He removed the cracked weldment with ChamferTrode, a grooving electrode. The amperage was reduced to 80 and a 1/8" EutecTrode 680 electrode applied with the skip-welding technique. The repaired bucket worked perfectly saving the cost of a replacement.

Circle No. 425 on Inquiry Card—Page 17

Switching Lubricant Doubles Life of Truck Gears, Bearings



Two roundtrips each working day, hauling logs over 40 miles of country road and over adverse grades, was tearing the heart out of trucks of Trinity Alps Lumber Co., Hayfork, Calif. Using Fiske Lubriplate lubricant, Trinity Alps found they could double the life of the truck's gears, thus reducing downtime and replacement costs. Vital parts, such as bearings also hold up better with the new lubricant.

Circle No. 426 on Inquiry Card—Page 17

For More Information Circle No. 831 on Inquiry Card—Page 17→

steel-pride

SHOP EQUIPMENT

preferred because . . .





it's

- PRACTICAL
- EFFICIENT
- ECONOMICAL

A UNIT FOR EVERY PURPOSE

Here's a complete line of Shop Equipment designed to make your work **easier** and **more** efficient. These pieces will save you countless hours of wasted time and effort in the shop—for "you know where to find things." They save serious losses of valuable material too, for those that should be are equipped with trustworthy locks. All are made of heavy gauge steel to stand long life and rugged usage. Most of them are shipped KD (knocked-down) to save shipping costs; easy to follow assembly instructions come with every unit. If ordered in large quantities these units will be finished in any color of your choice at no extra cost.



LOCKERS AND CABINETS TOO

JET-LOK construction, the feature that saves you time and money, put the "steel-pride" Locker and Cabinet in a class by itself. This same principle of construction **adds** strength, provides for **extra** rigidity, affords **greater** pilfer protection and **eliminates** bellying no matter what length of multi-unit is involved—single or double row. Available in Forest Green or Office Gray.



GET THE WHOLE STORY. SEND COUPON FOR CATALOGS AND NAME OF NEAREST DEALER.



We are equipped to manufacture special items to meet your exact specifications.

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STEEL SERVICE MANUFACTURING CO.
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Please send catalog and name of nearest dealer. P655

☐ Steel-Pride Shop Equipment ☐ Lockers and Cabinets

NAME _____

FIRM _____

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CITY _____ ZONE _____ STATE _____

Shuts Doors, Windows, Stops Conveyors Sounds Alarm...

KILLS TOUGH FIRES!

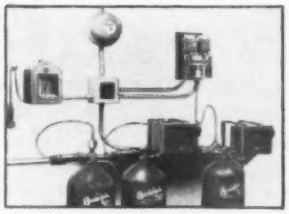


Randolph

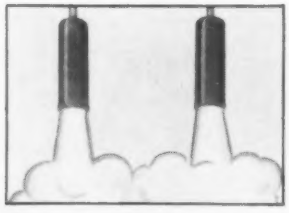
EXTINGUISHING SYSTEMS



A fire! And the sensitive detector sends current to an alarm and storage tanks!



Doors and windows close . . . conveyors stop *automatically*. Powerful carbon dioxide pours through the feed lines.



Giant-size "CYCLONE" nozzles deliver the fire-killing punch . . . flood the entire room in 15 seconds!

Where your fire hazards are severe and areas are large or inaccessible . . . play safe! Be ready and secure with a *fast action* Randolph Automatic Fire Extinguishing SYSTEM!

At the first spark or flicker of flame . . . hundreds of pounds of powerful, non-damaging carbon dioxide flood the entire area . . . reach into every corner . . . stop the toughest fire . . . *all* automatically . . . *all* in a few seconds!

Thermostats set off alarms and immediately release a fire killing charge of CO_2 from stored cylinders through pipelines to overhead nozzles . . . the CO_2 charge smothers the fire with a heavy snow blanket. This charge can also shut doors, close windows, shut off motors, fans, conveyors, gas lines and close ducts . . . all automatically.

Send for Randolph's free FIRE HAZARD INDEX recommending the correct equipment for protection against any of the 580 typical fire hazards that might exist on your premises. Randolph's System Engineering Service is also available without cost or obligation. Write today: Randolph Laboratories, Inc., 1 E. Kinzie St., Chicago 11, Ill.



For More Information Circle No. 832 on Inquiry Card—Page 17

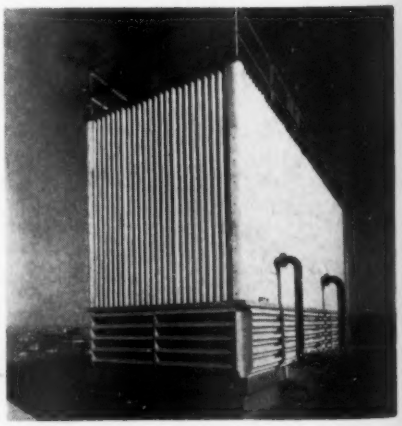
Air Jacks Slash Labor Costs Over 90%



E. E. Farrow Co. cut labor costs in Anadarko, Okla., from $2200 to $180 using two 100-ton capacity Duff-Norton air motor jacks to raise a 240,000 pound turbo generator 22 feet for installation. The jacks were used to raise one end of the generator; then this end was blocked up while the other end was elevated. With the air motor jacks, three men completed the job in 2½ days. It would have taken eight men 12 days using mechanical jacks. Fitters' wages are about $3.00 per hour.

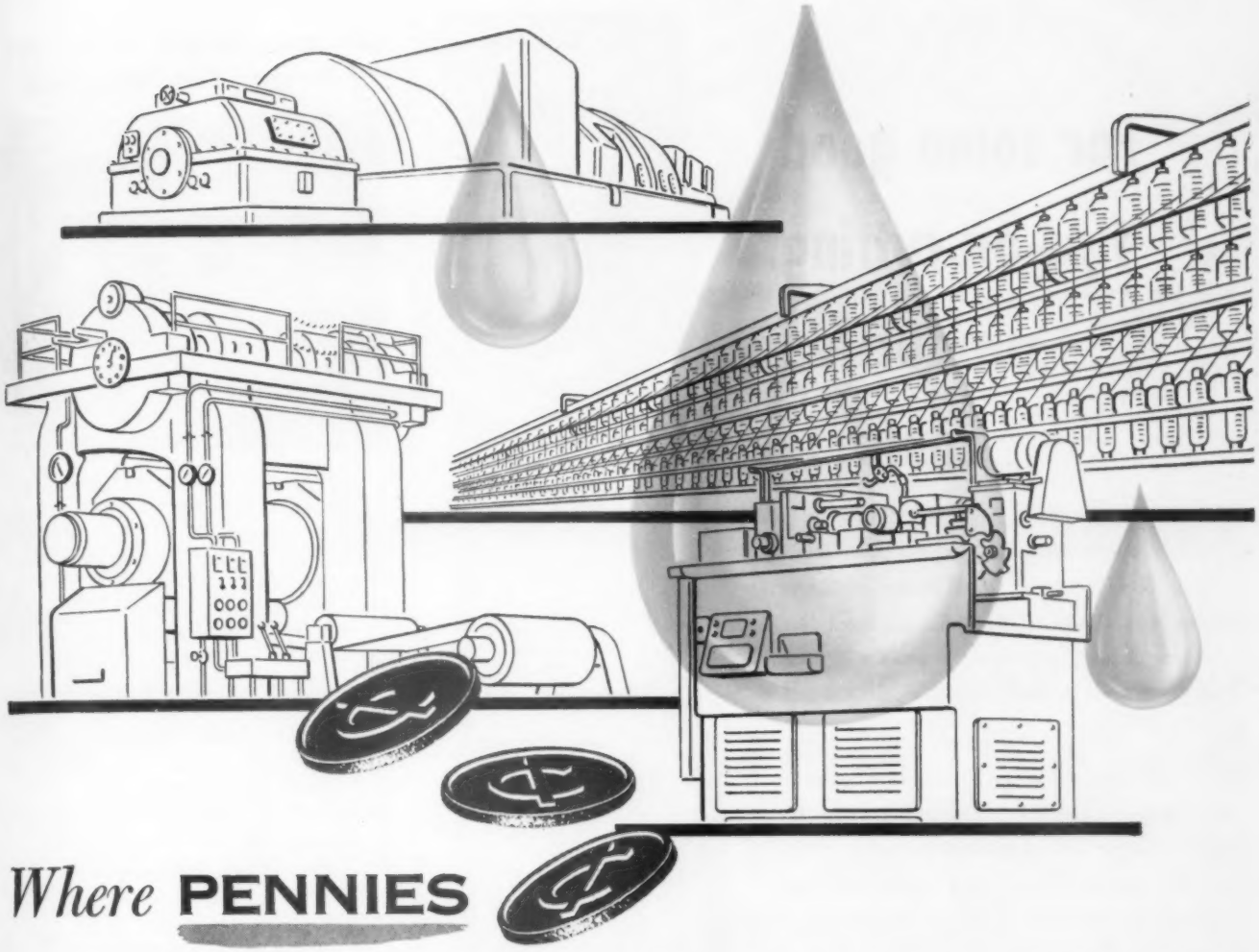
Circle No. 427 on Inquiry Card—Page 17

Asbestos-Cement Sheet Used 9 Years; no Maintenance Costs



Codes in many cities require that cooling towers for air conditioning systems have non-combustible external structures. Steel has been tried, but must be re-coated every 2 or 3 years to halt corrosion. This tower, made by Phillips Cooling Tower Co., is made with Johns-Manville corrugated Transite, which doesn't corrode and meets fire protection requirements. In 9 years, there have been non-maintenance costs on Transite-built tower enclosures.

Circle No. 428 on Inquiry Card—Page 17



Where PENNIES *protect* THOUSAND DOLLAR BILLS!



Since the cost of lubricants is negligible compared to the investment they protect, why not specify the best—and thereby gain an extra margin of protection?

The few additional pennies per gallon you spend for highest quality lubricants are easily justified by savings in maintenance costs and machine downtime. In fact, many plants have found that these savings are sizable enough to more than pay the entire lubricant bill.

When you think of quality lubricants, think of Gulf. Gulf's fine lubricants are engineered to meet specific needs, controlled to maintain desired qualities, and thoroughly tested to assure efficient performance.

Remember too that Gulf provides the cooperative counsel of experienced engineers to help insure the proper application of the right lubricants for every unit of equipment and every operating condition. Write, wire, or phone your nearest Gulf office today and have a Gulf Sales Engineer call.

GULF

GULF OIL CORPORATION
GULF REFINING COMPANY
1822 Gulf Building, Pittsburgh 30, Pa.

THE FINEST PETROLEUM PRODUCTS FOR ALL YOUR NEEDS

For More Information Circle No. 833 on Inquiry Card—Page 17

For some good tips on cutting production costs...



... take a trip through the pages of this information-packed booklet, "Some Good Things to Know About Metal Cleaning." You'll find job-tested data on many cleaning operations that could well pave the way to lower production costs.

As you flip through the pages, you'll learn how pre-paint treatment with Oakite CrysCoat cuts costs 10 ways ... discover modern methods for treating water in paint spray booths ... read of the advantages of Oakite's rust-prevention methods ... and more.

If you're also purchasing cleaning materials in connection with:

- **Pickling, deoxidizing, bright dipping**
- **Paint stripping, steam detergent cleaning**
- **Burnishing, barrel cleaning**
- **Electrocleaning steel and nonferrous metals**
- **Machining and grinding**

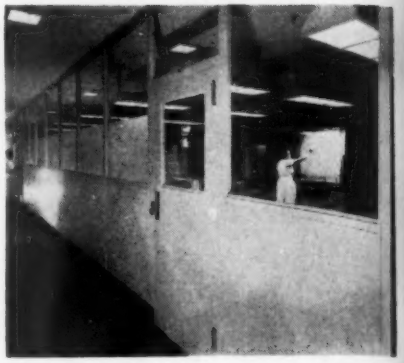
you'll want a copy of this well illustrated booklet for your files. It's yours for the asking. Write: Oakite Products, Inc., 54 Rector Street, New York 6, N. Y.

Technical Service Representatives in Principal Cities of U. S. and Canada

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS • METHODS • SERVICE

For More Information Circle No. 834 on Inquiry Card—Page 17

Lab Saves $86,000 in 15 Years of Changing Floor-Space Needs



Changing pharmaceutical developments have meant changing floor space requirements for the research lab of The Upjohn Co., Kalamazoo. Tearing down and building up ordinary tile and plaster walls could be an expensive proposition for the constantly changing lab. Using Hauserman movable walls has simplified the job and prevented undue loss of productive time. In dollars and cents, however, Upjohn finds that the movable walls have saved about $86,000 over a 15 year period in rearranging laboratory needs.

Circle No. 429 on Inquiry Card—Page 17

Hydraulic Controller Solves Positioning Problem



A difficult job for a hydraulically operated controller is found in municipal water systems where control over the level in an elevated tank is desired in one cycle of operation and constant distribution line pressure maintained in another cycle. A Type 100-B controller made by A. W. Cash Co. is being successfully used in this work to position a 24" Rotovalve of S. Morgan Smith Co. The controller is operated by water in the system.

Circle No. 430 on Inquiry Card—Page 17

For More Information Circle No. 835 on Inquiry Card—Page 17→

TUBE REQUIREMENTS

complete job dependability!



Copper Water Tube and Pipe

- Copper and red brass pipe
- Copper water tube, types K, L and M
- Refrigeration and automotive tube
- Copper drainage tube

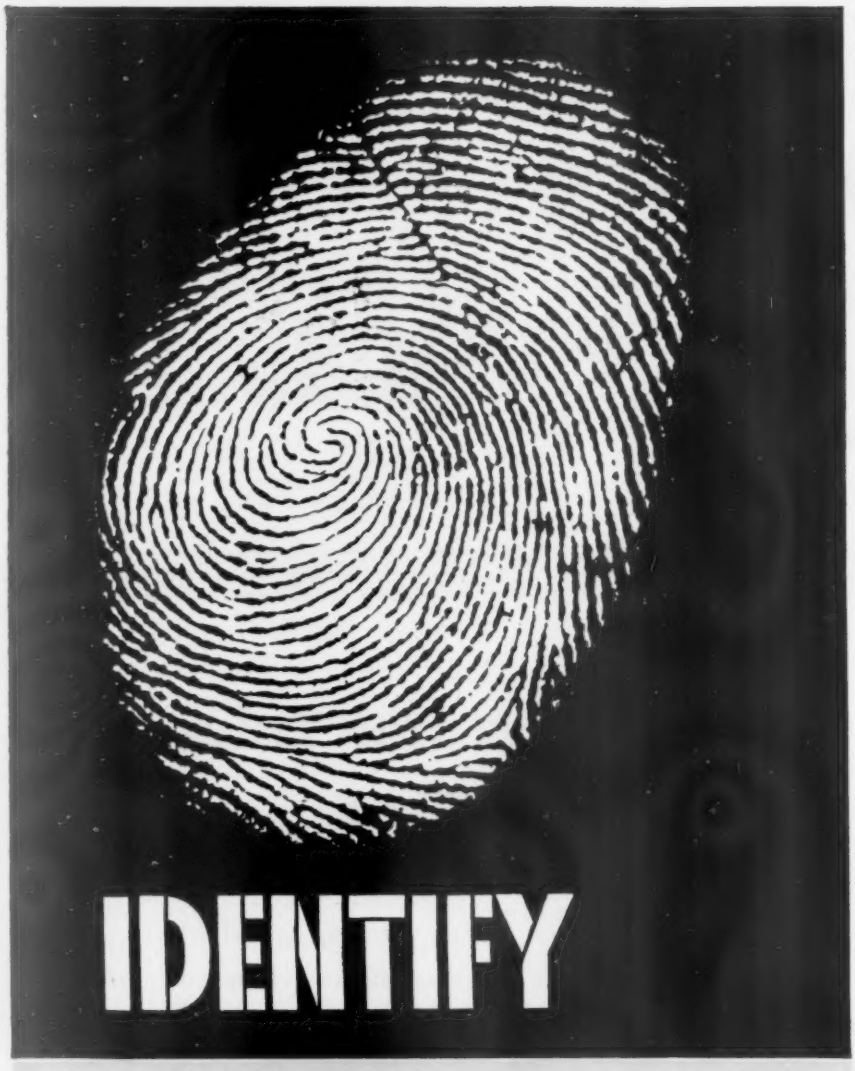
✓ Expert Craftsmanship—assured by exacting quality control throughout every phase of tube manufacture.

✓ Immediate Delivery—to all areas of the country from modern, strategically-located Phelps Dodge service depots.

PHELPS DODGE COPPER PRODUCTS CORPORATION

NEW YORK, NEW YORK • LOS ANGELES, CALIFORNIA • Offices in Principal Cities of the U. S.

For More Information Circle No. 836 on Inquiry Card—Page 17



SUPPLIERS...

the quick, easy 'Yellow Pages' way!

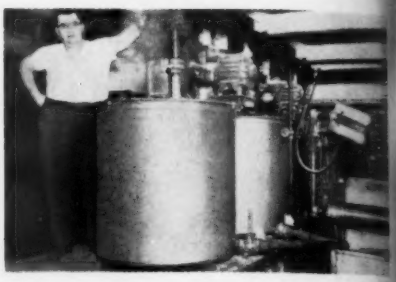
The 'Yellow Pages' of the telephone directory help you find suppliers quickly, provide you with complete information that helps you select the products you need. Use the 'Yellow Pages' constantly—they're an important source of buying information.

America's Buying Guide for over 60 years



For More Information Circle No. 837 on Inquiry Card—Page 17

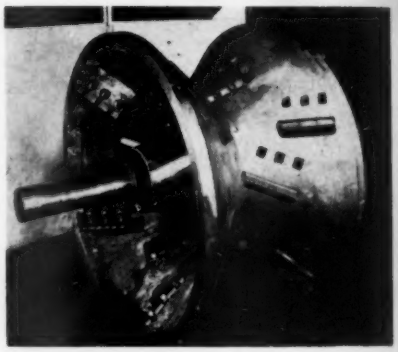
Valves Outlast Those Formerly Used By More than 8 Times



The Harodite Finishing Co. uses ball valves in applications that subject them to boiling hot starch. Old-type valves lasted 6 months. Rockwood valves installed 4 years ago are still going strong—and remain leakproof, fast-acting, and reliable.

Circle No. 431 on Inquiry Card—Page 17

2-Hours, Not 3 Days to Remove Shaft



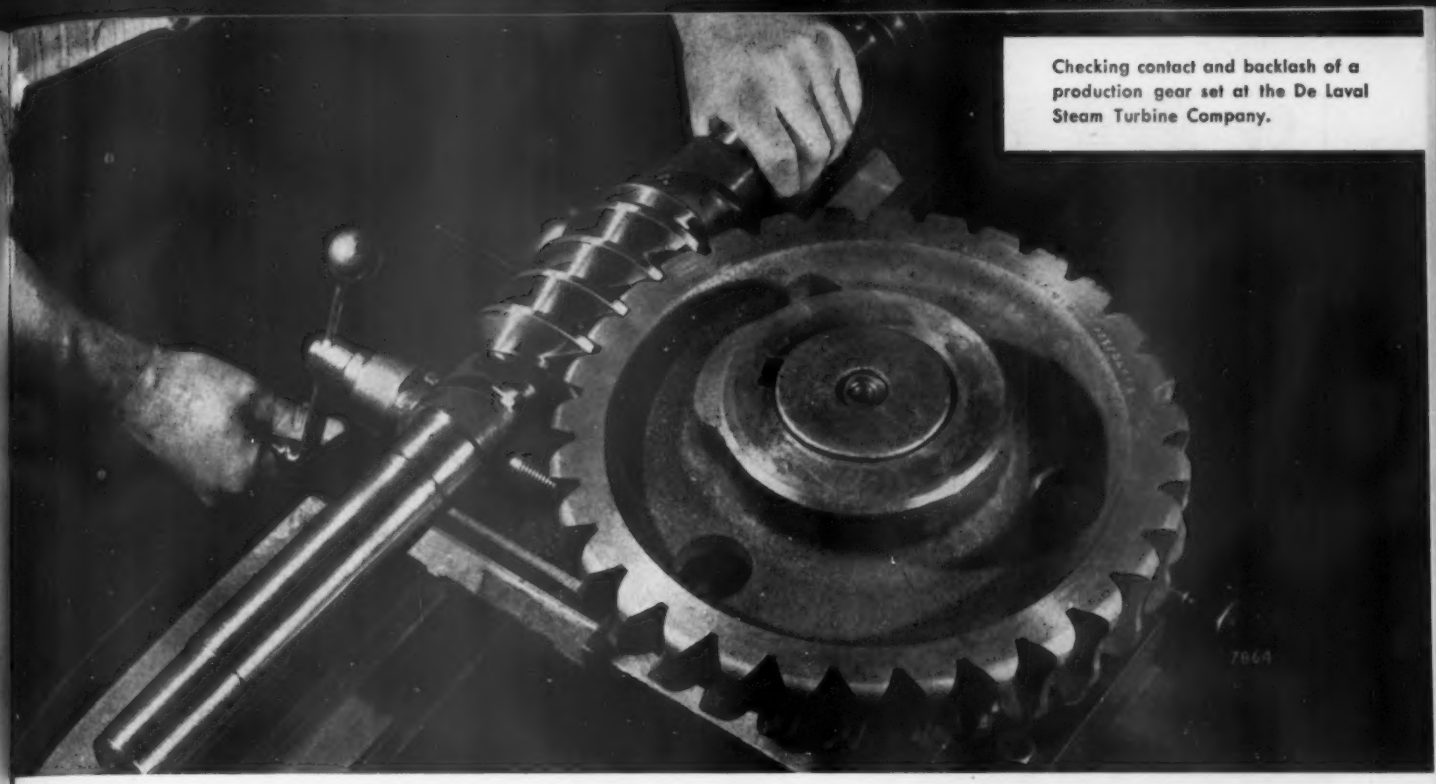
Diamond Iron Works Div., Goodman Mfg. Co., Ill., now employs QD hubs, made by Worthington Corp., on its double anvil wood hog. They replace discs which were bored to fit shaft and keys which had to be hydraulic-pressed into position. When discs have now to be replaced, they can be installed on the job by the user instead of entire unit having to be shipped to a hydraulic press service. It takes less than two hours to remove shaft and lock the keys, compared to two or three days used previously.

Circle No. 432 on Inquiry Card—Page 17

Aluminum-Magnesium Hammer Lasts 15 Times Longer

A leading aircraft manufacturer was plagued by work hardening, "mushrooming" and chipping of its conventional soft-faced hammers. It has now switched to aluminum-magnesium hammers as it finds they

(*Please turn to page* 472)



Checking contact and backlash of a production gear set at the De Laval Steam Turbine Company.

How to Save in Selecting Worm Gear Sets

By JAMES E. GUTZWILLER, *Assistant Chief Engineer, Worm Gearing Department*
De Laval Steam Turbine Company

Worm gear sets have four major advantages: compactness, easy maintenance, interchangeable components, and high shock-load capacity. The user can realize maximum benefits from these advantages and reduce costs by acquiring some background information on the characteristics of worm gearing. Here are a few points to consider.

Standard Components. Find out what standard components are available before proceeding with design. De Laval stock parts include worms, gears, bearing housings and end covers. By selecting from these, the user may sharply reduce the cost of the finished gear set.



HOBBING MACHINE — Tangential feed gives uniform teeth of precise dimensions. This is accepted as the most satisfactory method for producing close tolerance worm gearing.

The hob, for example, must match the pitch diameter, pitch, lead and tooth form of the worm. Designers who are familiar with standard hobs can design a worm accordingly and save the expense and delay of obtaining a special hob.

A Note on Assembly. The worm, having threads which are continuous in form, is not critical in regard to endwise location. The gear, however, must be precisely positioned in an axial position. Accumulation of tolerances on the dimensions of housings, shafts, bearings and gears makes it impractical, in most cases, to control the location of the gear by accuracy of machining alone.

Shrouding. Heat developed in the gearing will be more freely dissipated through a comparatively open housing. Close shrouding is permissible only when intermittent operation is the rule.

Helpful Manual on Worm Gear Sets



For information on how to select, install and maintain worm gear sets, send for this helpful manual. It contains useful data on gearing and includes examples of specific selection problems with their solutions. Write on your business letterhead to the De Laval Steam Turbine Company, 807 Nottingham Way, Trenton 2, N. J. for Catalog 5000.



They used the same wrench back in 1916! And people have always liked this Lowell Series 20 Gear Type Wrench just the way it was first made. So we haven't changed it.

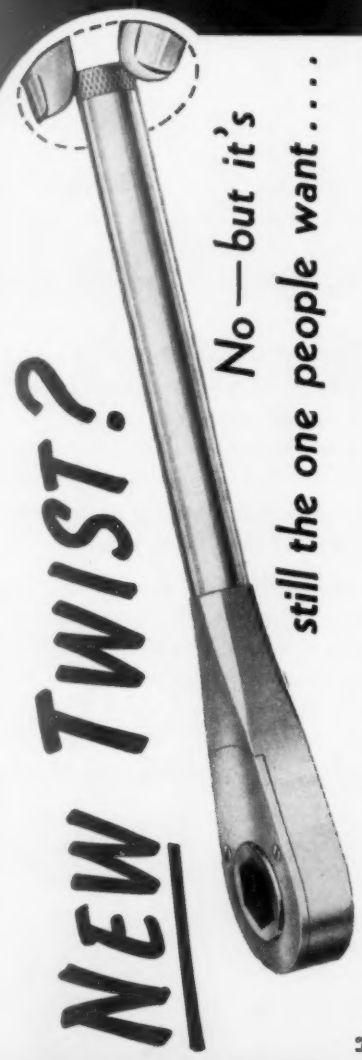
A twist of the knob at the *end* of the handle reverses the ratchet . . . keeps hands from hazardous positions. It's strong and lasts long, too.

You'll get complete information on all Lowell Ratchet Wrenches from Catalog 60-A. Send for your copy now.

LOWELL WRENCH CO.
WORCESTER 8, MASS.

NEW TWIST?

No—but it's still the one people want. . . .



For More Information Circle No. 838 on Inquiry Card—Page 17

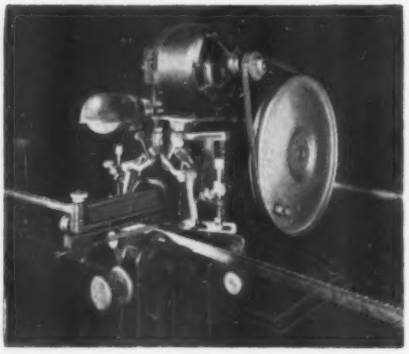
(*Continued from page 470*)

last from 10 to 15 times longer. The hammers, made in sizes from one to five lb, feature a 13% elasticity factor. They won't chip or shear and can be dressed over and over again. The handle is almost impossible to break as it can actually be bent double.



Circle No. 433 on Inquiry Card—Page 17

Automatic Saw Filer Gives $20 To $30 Savings Monthly



Penn Fibre and Specialty Co., Philadelphia, uses about 4 dozen band saws and 6 10″ and 12″ circular saws to cut vulcanized fibre and Bakelite. With the hardness of the materials, it was natural Penn would be faced with a saw sharpening problem. Installing a Foley Automatic Saw Filer two years ago proved to the answer. Now, only 4 hours a week in down time are needed to keep the saws sharp. This, plus a reduced saw inventory, has brought a cash saving of $20 to $30 monthly.

Circle No. 434 on Inquiry Card—Page 17

QUICK—CONVENIENT
Use the Inquiry Card on Page 17 for additional information on any product

There is No Place Like . . .

1st PLACE

. . . especially when it comes to a routing slip on a much sought after copy of an important business publication like PURCHASING Magazine.

All persons engaged in purchasing . . . especially in positions such as yours . . . should have personal copies. They should have a copy in which they can readily turn for ideas and new products . . . a copy they can read thoroughly and leisurely. This essential purchasing tool should be right there on their desk—as near to them as their telephone, their pen or the other things so vital to their working day.

To help YOU get your *personal* copies of PURCHASING Magazine, we have enclosed a subscription order card in this issue. Just tear it out, complete and mail it today—postage free. Your subscription will be entered immediately and you or your company invoiced later. The rate is $4.00—a small investment in your future, but one that will pay tremendous dividends.

* * *

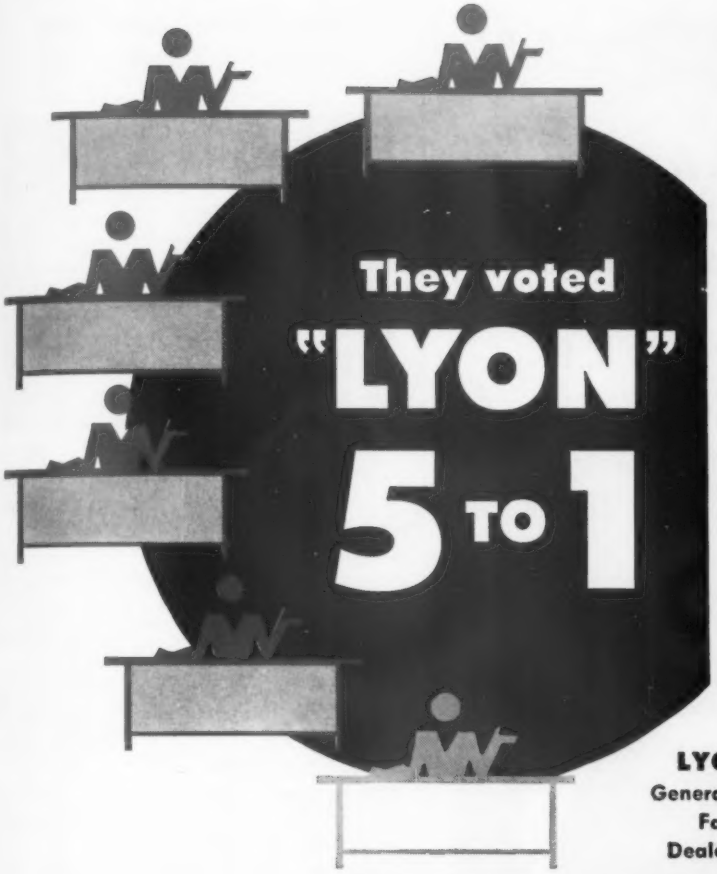
If the order blank has been removed before you receive this issue, just clip the coupon below and mail it to:

Mr. Mark Stone
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I would like my own personal copy of PURCHASING. You may bill me for
$4.00 for one year

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TITLE .....
COMPANY .....
ADDRESS .....
CITY ..... STATE .....



It's Lyon by a landslide in a recent preference survey among executives in companies throughout the country. They gave Lyon five times more first choice mentions than the second highest manufacturer . . . and twice as many as the next twelve combined!

A nationally known research company compiled those figures by asking key men in 5,000 companies this question:

"If your company were in the market for steel equipment such as steel shelving, lockers, work benches, shop boxes, etc., what manufacturers would you consider?"

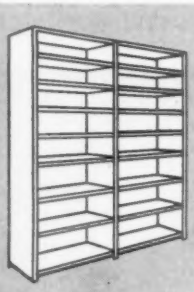
Your nearest Lyon Dealer offers the world's most diversified and most preferred line of quality steel equipment. (A few items are shown below.) Equally important, he can show you how to get the most out of steel equipment in terms of time, space and money.

LYON METAL PRODUCTS, INC.
General Offices: 633 Monroe Ave., Aurora, Ill.
Factories in Aurora, Ill. and York, Pa.
Dealers and Branches in All Principal Cities

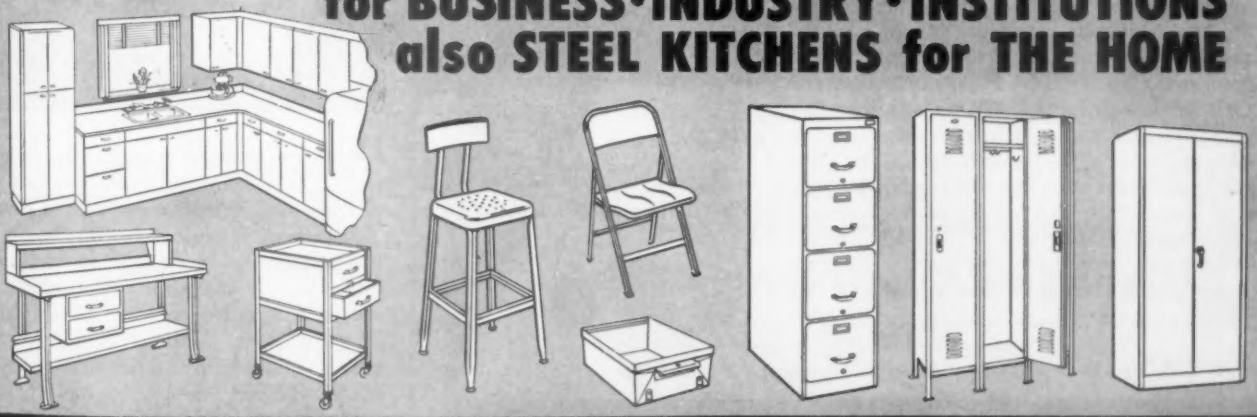
Lyon also has complete facilities for manufacturing special items to your specifications.

LYON®

STEEL EQUIPMENT



for BUSINESS • INDUSTRY • INSTITUTIONS
also STEEL KITCHENS for THE HOME



A PARTIAL LIST OF LYON STANDARD PRODUCTS

- Shelving
- Lockers
- Stools
- Bin Units
- Kitchen Cabinets
- Cabinet Benches
- Storage Cabinets
- Drawing Tables
- Tool Toters
- Bar Racks
- Tool Boxes
- Parts Cases
- New Freedom Kitchens
- Display Equipment
- Toolroom Equipment
- Wood Working Benches
- Flat Drawer Files
- Revolving Bins
- Filing Cabinets
- Hanging Cabinets
- Folding Chairs
- Coat Racks
- Work Benches
- Bench Drawers
- Service Carts
- Sorting Files
- Drawer Units
- Hopper Bins
- Tool Stands
- Shop Boxes
- Tool Trays
- Shop Desks

For More Information Circle No. 839 on Inquiry Card—Page 17

When you want a "soft" hammer that's

▶ BETTER, SAFER

▶ COSTS LESS AND

▶ LASTS LONGER

That's when you want

C/R Jawhead



The best "soft" hammer you can buy!

Careful engineering tests prove that C/R processed rawhide hammers will do more work with fewer blows, produce less worker fatigue. The secret—controlled rebound through special processing of rawhide fibers—permits longer contact to transmit force to the striking surface. C/R Rawhide faces give full protection to delicate parts and finishes, will not crack, spark, nor become brittle at low temperatures. C/R Safety-Flare handle assures a non-slip, comfortable grip. C/R Jawhead hammers are designed to withstand the heaviest industrial use . . . and they cost you considerably less than most comparable "soft faced" striking tools. Be sure to use C/R Jawheads—*always.*

● Change faces in seconds. Threaded collar locks them in. They can't slip or fly off.

Buy C/R Jawheads from your local industrial supplier.

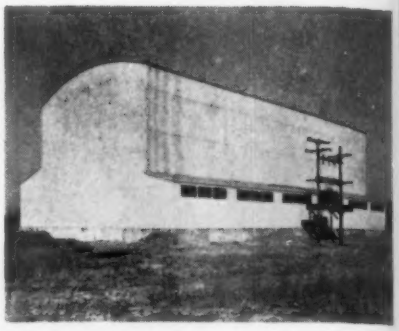
CHICAGO Rawhide MFG. CO.

1301 Elston Ave. Chicago 22, Illinois

In Canada: Super Oil Seal Mfg. Co., Ltd., Hamilton, Ontario

For More Information Circle No. 840 on Inquiry Card—Page 17

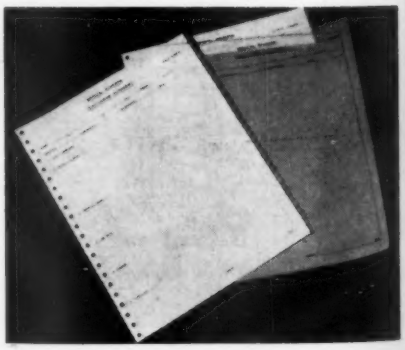
Special Paint Defies Acid Fumes Since April in '52



Protecting their buildings from the action of ammonia gas, nitric acid fumes, acid dusts, etc., was a continuous and expensive problem for Lincoln Service & Supply Co., Grand Island, Neb., fertilizer manufacturers. However, after the application of Rustarmor made by Inertol Co., Inc., to the outside of the structure, Lincoln's main headache stopped. Applied in October of 1952, the Rustarmor coat has been on without any upkeep. Two coats of Rustarmor, sprayed on after cleaning and priming did the trick.

Circle No. 435 on Inquiry Card—Page 17

Translucent Master Saves Clerical Labor for Hospital



Incorporating a translucent master in a discharge form of Autographic Business Forms, Inc., a New York hospital is able to fill requests for a patient's case history within minutes. At the time of discharge, the data is put on a form containing a translucent master, a file copy and a clinic copy. The translucent master is run through a whiteprint machine to make copies for any doctor who subsequently treats the patient. This provides a limitless number of copies which previously had to be typewritten.

Circle No. 436 on Inquiry Card—Page 17



All set to fill your order

for solder in any form or formula or flux for any soldering job

What do you want in a solder or flux?

Want a solder with extra strength . . . greater hardness, more brightness, lower melting or some other special property? National Lead has it or will make it for you.

Want a special die-cut preform . . . or bar, wire or tape of a particular shape . . . or a special solder powder, paste or paint? National Lead will produce it to your specifications.

Want a flux that cleans and wets better . . . or promotes capillary rise . . . or needs no after-rinse . . . or is non-corrosive and non-conductive . . . or limits solder flow to a specific work area? National Lead will compound it for you.

And take advantage of National Lead's solder research and testing facilities. Maybe National Lead's metallurgists and chemists can help you find solders and fluxes that are better suited to the job you are doing and that cut your costs. The nearest National Lead branch office will be glad to look into it. All it takes is a phone call.

National Lead Company

Dutch Boy PRODUCTS

General Offices: 111 Broadway, New York 6, New York • Atlanta • Baltimore • Buffalo • Chicago • Cincinnati • Cleveland • Dallas • Detroit • Kansas City • Milwaukee • New Orleans • Omaha • Philadelphia • Pittsburgh • St. Louis • St. Paul • Boston: National Lead Co. of Mass.; Pacific Coast: Morris P. Kirk & Son, Inc., Los Angeles, Emeryville (Calif.), Phoenix, Portland, Salt Lake City, Seattle; Canada: Canada Metal Co., Ltd., Montreal, Toronto, Vancouver, Winnipeg.

For More Information Circle No. 841 on Inquiry Card—Page 17

NEW WILLIAMS LOCKING ADJUSTABLE WRENCH

THE ONLY REAL ADJUSTABLE WRENCH IMPROVEMENT IN OVER 40 YEARS!



WITH FEATURES YOU HAVE ALWAYS WANTED IN AN ADJUSTABLE WRENCH

- No Obstructions
- Rapid Adjustment
- Structurally Sound
- One Hand Operation
- Positive Lock
- No Fumbling
- Drop-Forged from Selected Alloy Steel and Chrome Plated

AVAILABLE IN THREE MOST POPULAR SIZES

No.	Size	Capacity	List Price
8L	8"	15/16	$2.45
10L	10"	1 1/8	$3.10
12L	12"	1 5/16	$4.50

WILLIAMS INDUSTRIAL TOOLS "The Broadest Line of Its Kind"

WRITE for descriptive folder No. A-465. Also ask for Catalog 202 showing the latest patterns and sizes in Williams broad line of industrial tools.

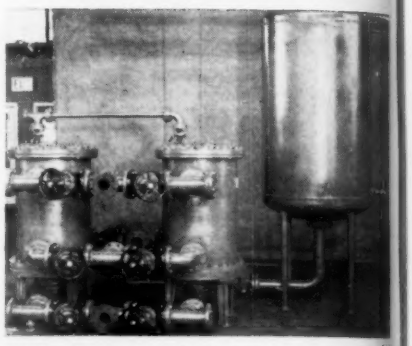


you'll get SERVICE ON THE DOUBLE from your DISTRIBUTOR'S SALESMAN. He'll give you quickest delivery at lowest cost!

J. H. WILLIAMS & CO., 402 Vulcan Street, Buffalo 7, N. Y.

For More Information Circle No. 843 on Inquiry Card—Page 17

Disposal Well Operation Cost Lowered With Filter Unit



Waste water disposal is a growing problem in the industrial and chemical fields. Disposal wells, an expensive operation, tend to get clogged with the waste pumped into them. Several firms use Adams filters to provide a final polish on waste water. Through the use of the filters, the disposal well sands are kept clear of clogging, thus effecting considerable savings in the well operation.

Circle No. 437 on Inquiry Card—Page 17

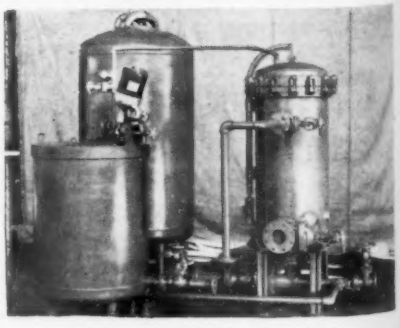
New Seal Is Impervious to Chemical Action

A new external rotating mechanical seal for pump, or agitator shafts is claimed to last longer and give superior service under a wide variety of difficult service conditions. It has been tested over a period of three years handling such chemicals as acids, alkalies, alcohols, hydrocarbons, and tarry materials.

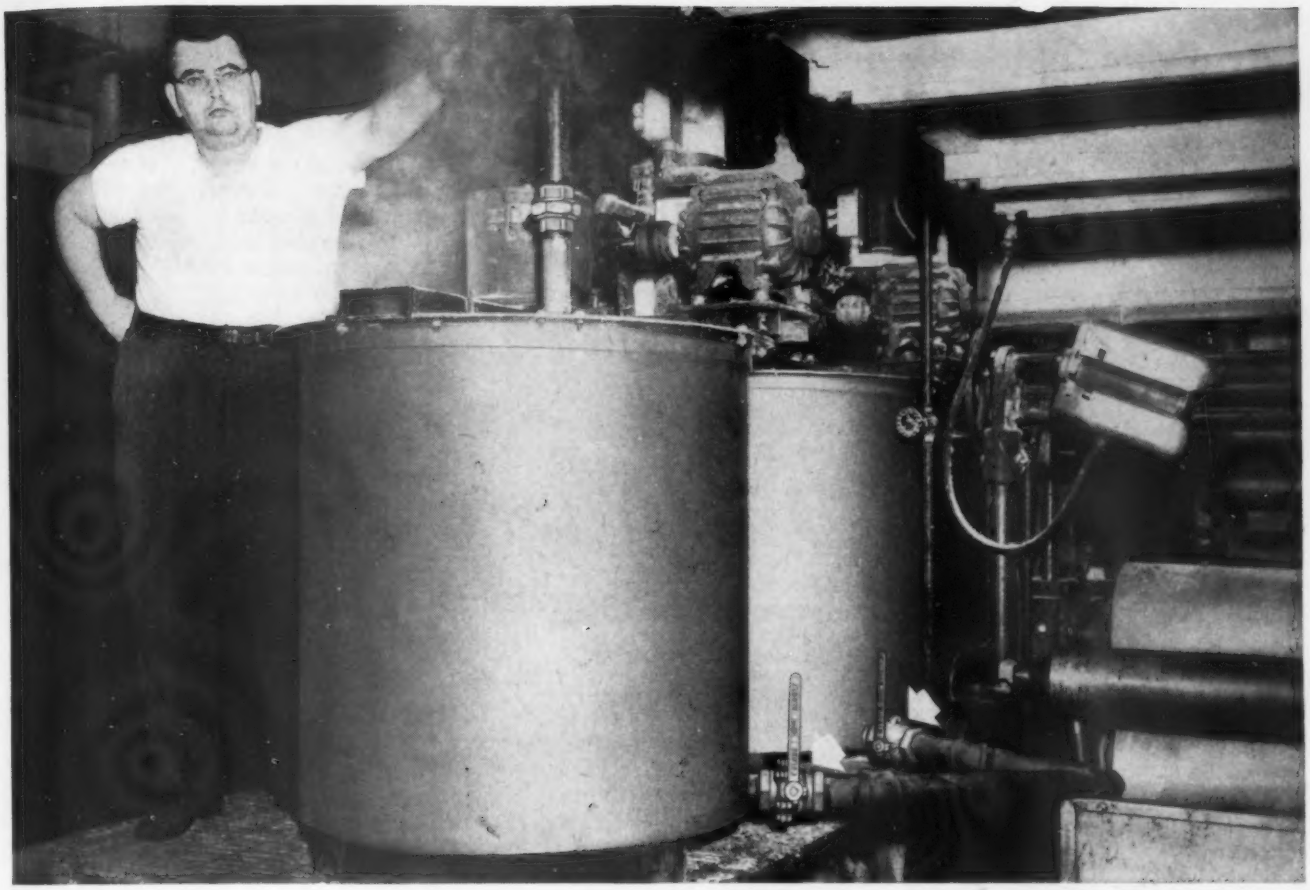
Incorporated in the seal's design is a bellows made of chemically impervious Teflon. The seal rotates with the shaft. Since the only bearing surface is between precision ground rotating and stationary faces, low friction results. Manufacturer of the seal is United States Gasket Co., Camden 1, N. J.

Circle No. 438 on Inquiry Card—Page 17

Filters Delay Shut-Down Periods For Cleaning



(Please turn to page 478)



Boiling Hot Starch flows through these valves. Old-type lasted 6 months. Rockwood ball valves have been in 4 years and are still going strong.

Want valves you don't have to replace?

Perhaps what you're handling isn't as tough as boiling hot starch. But whether it's worse or better you don't want to keep changing valves.

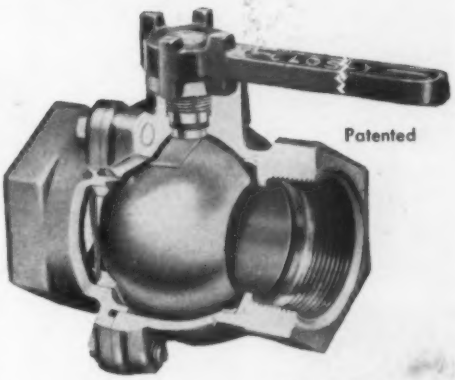
The Harodite Finishing Company of North Dighton, Mass., says Rockwood ball valves have lasted longer in the service than any they have ever used. Present Rockwood valves are 4 years old — leakproof, fast-acting, reliable. Other types used lasted from 6 months to a year. The master mechanic says he'd buy them on performance alone — with the longer life as a bonus.

If you want full round flow, quick action and long life in valves — what you want is Rockwood.

Four features you need . . .

1. **Full round flow** — no turbulence in fluid stream.
2. **Leakproof** — after continued use.
3. **Quick opening and closing** — with quarter-turns under full pressure.
4. **Longer life** — longer periods between replacement and no maintenance.

Tested and listed by Underwriters Laboratories, Inc. Comes in all pipe sizes.



MAIL TODAY

ROCKWOOD SPRINKLER COMPANY
3001 Harlow Street
Worcester 5, Mass.

Send me illustrated folder V-4 on Rockwood Full-Flow Ball Valves.

Name _____

Title _____

Company _____

City _____

Zone _____ State _____

ROCKWOOD BALL VALVES

FULL, ROUND FLOW

For More Information Circle No. 844 on Inquiry Card—Page 17

Available from your near-by distributor . . .

A *Browning* GRIPBELT FOR EVERY PURPOSE!



DOUBLE-V GRIPBELT

For multiple shaft drives. Driven shafts may operate in the same or opposite directions.

GRIPBELT, SUPER GRIPBELT

The high-quality all-purpose belts proved by years of satisfactory service in all types of drives.



GRIPLINK

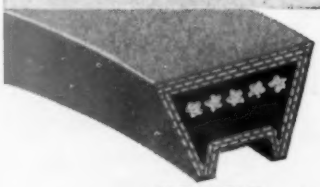
This unique belt assembles to any length needed. Ideal where obstructions hinder belt replacement.



POLY-V* BELT

New multiple V-belt in single unit. Delivers more horsepower, cuts space requirements, eliminates matching problem.

* ® Raybestos-Manhattan, Inc.



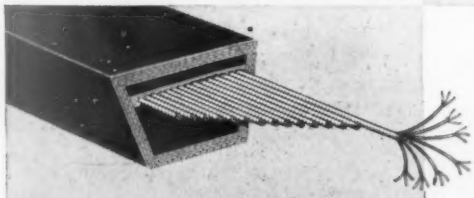
FHP BELT

Special safety channel adjusts during molding to maintain exact side wall dimensions. Smooth, vibrationless power, longer life.



GRIPROLL

For special applications where endless belt cannot be used. Cuts to any length, splices readily.



STEEL CABLE GRIPBELT

Transmits heavier loads with smaller sheaves or fewer belts. Negligible stretch, longer life, greater economy.

Choose from these dependable Browning belts for your every belt requirement. Together with Browning's wide range of single and multiple groove sheaves, all precision machined to exacting specifications, they form the most complete V-drive line. Ask your distributor, or write us direct for catalog GC101.

Browning MANUFACTURING COMPANY
MAYSVILLE, KENTUCKY

For More Information Circle No. 845 on Inquiry Card—Page 17

(*Continued from page 476*)

Several manufacturers of synthetic fibers use R. P. Adams filters to remove foreign matter such as precipitated solids, fines of filaments, etc., from their spin bath solution. The filters have increased the operating periods between shut-downs for cleaning, reduced the damage to filaments, and extended the life of the spin bath solution.

Circle No. 439 on Inquiry Card—Page 17

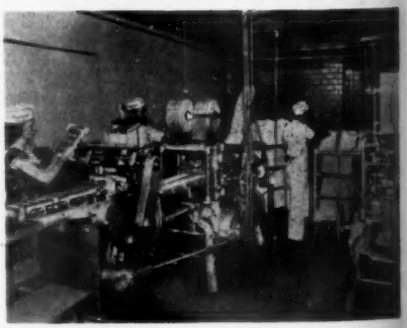
Special Tape Cuts Usage by 30%



Austin Motor Company had a problem expediting orders for replacement parts. Looking for a closure both "efficient and labor-saving," it found the answer in the use of a Blue Ribbon tape. Parts Manager Herbert Gallus says the tape "added tremendously to our ability to ship promptly and economically." He stated that with this tape, tape usage had been cut 30% with a corresponding drop in labor costs.

Circle No. 440 on Inquiry Card—Page 17

Service Calls Cut to a Minimum with Lubricant



Service engineers of the Lynch Corp., Toledo were kept busy taking care of machine troubles, for awhile. However, switching to the use of Lubriplate, made by Fiske Brothers Refining Co., cut down, considerably, on repair work. In addition to reducing customer service calls to a minimum, the Lynch organization found the lubrication reduced unnecessary wear and prolonged the life of machines.

Circle No. 441 on Inquiry Card—Page 17

new Hi-Dri
new Hi-Dri
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Hi, Guy!
Better Buy Hi-Dri
...for a better buy!



WAVERLY
Hi-Dri
all-purpose
oil and grease absorbent

newest and best absorbent for preventing slipping accidents and flash fires

new Hi-Dri . . . **high** in quality
new Hi-Dri . . . **high** in value
new Hi-Dri . . . **high** in absorption
new Hi-Dri . . . **high** in coverage

HI-DRI easy to apply

Promotes plant cleanliness. So oil-thirsty that it absorbs not only daily accumulation of oil around machines, but, unlike fibrous materials and sawdust HI-DRI draws out old oil stains from wood, concrete, metal floors. Keep your plant clean, neat, safe and improve work incentive and employee morale!

BEFORE





AFTER

Free SAMPLE and literature

WAVERLY
Petroleum Products Company
1724 Chestnut St.
Philadelphia 3, Pa.
Since 1880

Sure, we'll try HI-DRI, *without obligation.* Send the free sample and literature to:

Individual _____

Company _____

Street _____

City _____ State _____

P

For More Information Circle No. 846 on Inquiry Card—Page 17



whatever
your metal hose needs

get them all from a single source

Your FLEXONICS Distributor

The purchase of your flexible metal hose requirements need not be an involved, time consuming procedure. Make your local Flexonics distributor your on-the-spot supplier. He handles the most complete line of flexible metal hose products available anywhere. When you use his facilities you get all your flexible metal hose needs from a single source.

MAKE YOUR OWN FLEXIBLE CONNECTIONS

Here's the economical, time-saving way to handle replacement of flexible connections: Stock coils of RW-81 corrugated, braid covered hose in your most used diameters. Also stock an assortment of Rex-Tite couplings. You then have the "makings" and any maintenance man can quickly assemble tailor-made flexible connections. Ask your Flexonics distributor to recommend proper stocks to meet your requirements.

Flexonics *Corporation* — CHICAGO METAL HOSE DIVISION

1316 S. THIRD AVENUE • MAYWOOD, ILLINOIS

Flexon identifies products of Flexonics Corporation that have served industry for over 53 years.

FORMERLY CHICAGO METAL HOSE CORPORATION

Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components.
In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

For More Information Circle No. 847 on Inquiry Card—Page 17

Inconel Exhaust Pipes Give Trucker $28,000 Savings



Original steel exhaust pipes were failing between 25,000 and 40,000 miles on the trucks of Carolina Carriers Corp. Switching to Inconel exhaust pipes, the firm has found, since 1947, that even after 800,000 miles the pipes are still in use. With no signs of deterioration at all, it has been found that each Inconel pipe saves nearly $500 on maintenance during the life of the truck. Total savings resulting from the exhaust pipe change in 1947 for Carolina has amounted to $28,000.

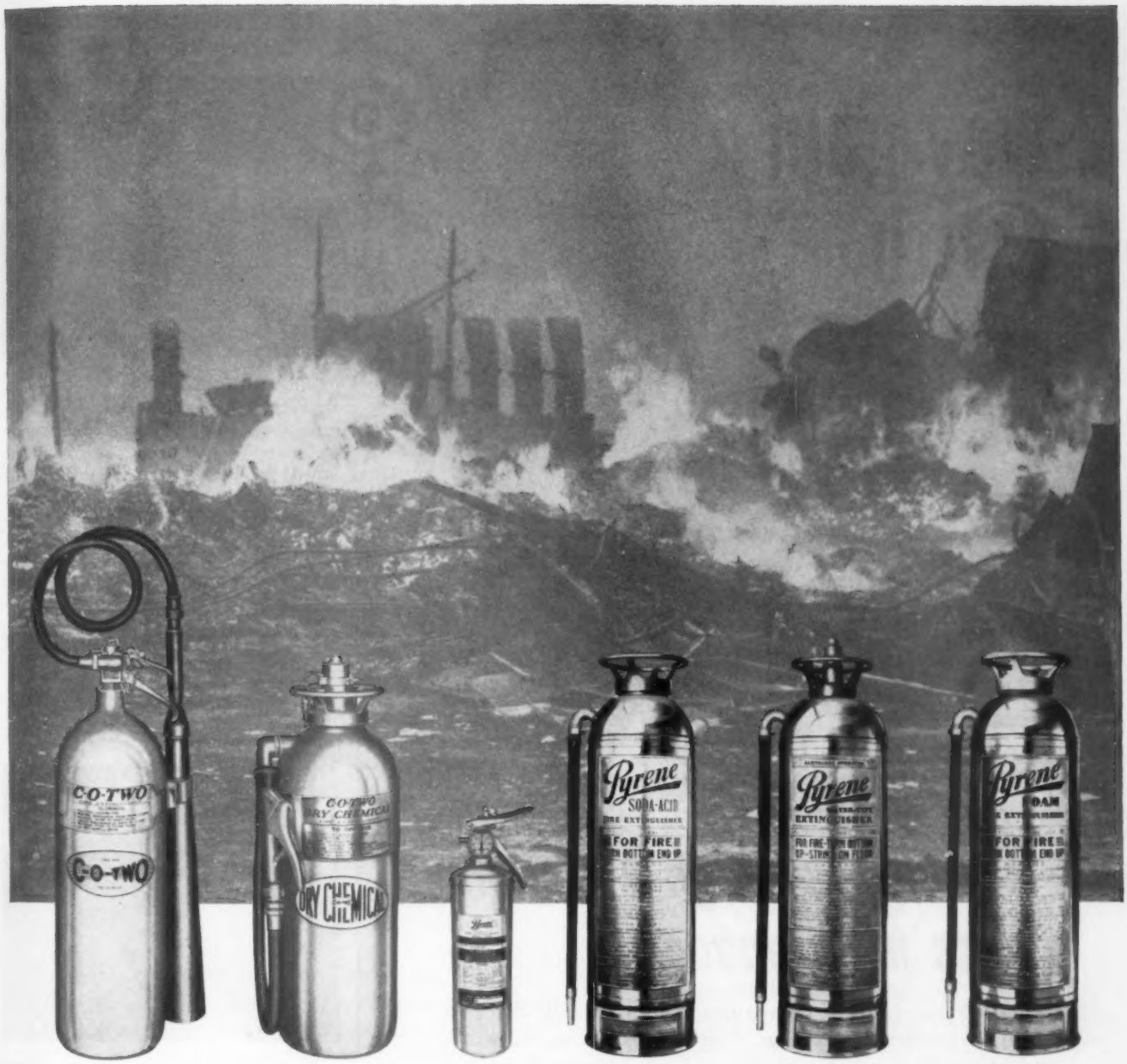
Circle No. 442 on Inquiry Card—Page 17

Fork Lift Truck Saves $100 Weekly on Parts Storage



A new storage system for unfinished parts and assemblies, used in manufacture of heating and ventilating equipment, was needed by Herman Nelson Div., American Air Filter Co., Inc., Moline, Ill. The company wanted to maintain an inventory of partially completed units from 2 to 6 months ahead of current production, so as to fill orders faster. For building up economically such a parts storage in advance of production, Towmotor lift trucks were used. On one operation alone a pneumatic tired truck saves $100 weekly, doing a transporting job in 10 minutes instead of the 2 hours previously needed.

Circle No. 443 on Inquiry Card—Page 17



ALL TYPES...ANY CLASS FIRE!

Since different fire hazards require different types of fire extinguishers, PYRENE—C-O-TWO manufactures all types . . . the finest and most complete line on the market today.

When doing business with PYRENE—C-O-TWO, you receive unbiased advice on what is best for your particular fire hazards, whether class A, B or C. Also, there is a well-rounded sales engineering organization having nation-wide representation to render top quality service wherever you're located.

Don't take unnecessary chances . . . the extensive fire protection experience of PYRENE—C-O-TWO over the years is at your disposal without obligation. Get complete facts now!

Pyrene

PYRENE — C-O-TWO

NEWARK 1 • NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada

C-O-TWO

COMPLETE FIRE PROTECTION

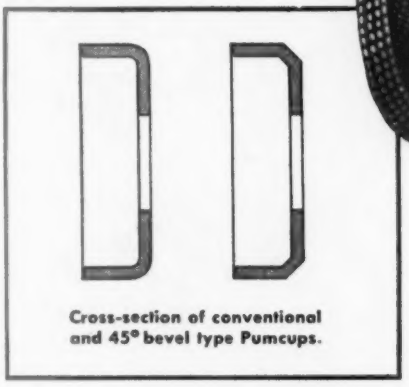
portable fire extinguishers . . . built-in fire detecting and fire extinguishing systems

CARBON DIOXIDE • DRY CHEMICAL • VAPORIZING LIQUID • SODA-ACID • WATER • CHEMICAL FOAM • AIR FOAM

For More Information Circle No. 848 on Inquiry Card—Page 17

2-way gain with PUMCUPS





Cross-section of conventional and 45° bevel type Pumcups.

Darcova Pumcups are available in various types and textures, in a complete range of sizes, to provide unequalled efficiency and long life in reciprocating pumps, air or hydraulic mechanisms.

★ prolonged high efficiency
★ less maintenance

TODAY hundreds of companies using hydraulic controls, air cylinders or reciprocating pumps are *standardizing* on Darcova Pumcups for piston packing, because they eliminate fluid slippage, costly down-time and maintenance.

Darcova Pumcups make the *most* of the cup packing principle. And, they are made in a complete range of sizes, types and texture-engineered compositions for various pressure-temperature-fluid conditions. Pumcups hold peak efficiency for the life of the cups and outlast other packing as much as 3 to 1.

Why not check these claims right in your own plant? Meanwhile get *all* the facts. Just send for Pumcup Bulletin No. 5503.

DARLING VALVE & MANUFACTURING CO.
Williamsport 7, Pa.

DARCOVA — THE ORIGINAL COMPOSITION CUP

TRADE MARK PUMCUPS

For More Information Circle No. 849 on Inquiry Card—Page 17

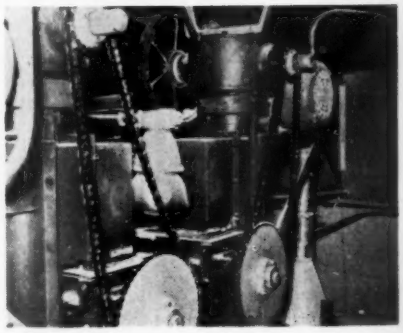
Odor Problem Eliminated by Changing Packing Materials



Megowan Educator Food Co., makers of biscuits and crackers, had a packaging difficulty common to many food processors. In the words of L. P. Nichols, purchasing agent, "Since we package food, we are doubly anxious to keep any foreign odors away from our products." He continues to say that his super standard tape "has no strong odor to contaminate our shipments."

Circle No. 445 on Inquiry Card—Page 17

Initial Sprocket Cost Down 22%; Replacement Down 57%



Standardization of power transmitting appliances is providing considerable savings for a prepared foods plant in Pennsylvania. Using interchangeable parts means relatively few sheaves, sprockets and hubs carried as spares to fit a variety of drives. Using "QD" tapered split hubs makes it easy to get sprocket and sheave to fit common hub. Savings as a result of standardization are 22% on initial sprocket cost and 57% saving on replacement costs.

Circle No. 446 on Inquiry Card—Page 17

Chrome Plating Solution Life Extended With Filtering

One of the nation's largest auto manufacturers uses R. P. Adams Co., Inc. filters for polishing the

(*Please turn to page* 484)

Do you judge other products half as critically as you do your own?

You're careful to *sell* exactly what the customer wants—but when it comes to *buying* . . .

How about the towels your company buys for its washrooms? You supply them as a convenience to your customers and the people who work with you—because it's good business to do so. But when you settle for a towel of inferior quality, a towel that just doesn't do an adequate job, then your goodwill gesture becomes meaningless.

People have definite preferences about towels

ScotTissue Towels are the kind people prefer to find in washrooms, because they use Scott products in their own homes. That's because ScotTissue Towels do their job better. Double-fold with wet-strength—they won't come apart when wet. ScotTissue Towels are nevertheless so soft that many people use them as face cloths.

Cost less in the long run

The proof of a towel is in the drying. Because of faster and greater absorbency, one ScotTissue Towel dries both hands—easily. You actually save money with ScotTissue Towels because consumption is lower in the long run. Remember—it's not the initial price of a case of towels, but the *rate of use* that's important when you're figuring costs.

Test ScotTissue Towels yourself—prove their quality

The best way to evaluate ScotTissue Towels is to prove them in your washrooms against the towels you use now. Your local Scott representative or distributor will show you a simple but effective consumption test that can result in substantial savings.

Scott also has a "Planned Poster Program" which will do much to cut consumption and promote cleanliness in your washrooms. This program will be mailed to you without any cost or obligation on your part. Simply write to Scott Washroom Advisory Service,® Dept. P-6, Chester, Pa.

It's good business to use

SCOTTISSUE® TOWELS



All cans are not alike

INSIST ON

EAGLE

SAFETY CANS

Approved by Underwriters Laboratories & Factory Mutual



TRIGGER TYPE
1 qt., 2 qt.
1 gal.



FREE-SWING TYPE
2½ and 5 gal.

THE COMPLETE LINE

- Available in 5 sizes from 1 qt. to 5 gal.
- No waste, no splash, no spill
- Strong 1-piece construction—no seams
- Self-adjusting guard cap prevents leakage
- Safe for handling all explosive and flammable liquids

Order from your supplier or write us for information. Eagle products are also available in Canada.

EAGLE MANUFACTURING COMPANY • Wellsburg, W. Va.
Serving Industry Since 1894

For More Information Circle No. 851 on Inquiry Card—Page 17



No line of drinking-water equipment offers more than Halsey Taylor . . . in wide range of selection, in smart styling, in health-safety!

THE HALSEY W. TAYLOR CO.,
WARREN, OHIO

Halsey Taylor
COOLERS & FOUNTAINS

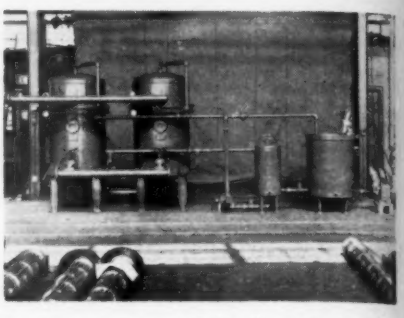
See our catalog in Sweet's or write!

F-32

For More Information Circle No. 852 on Inquiry Card—Page 17

(Continued from page 482)

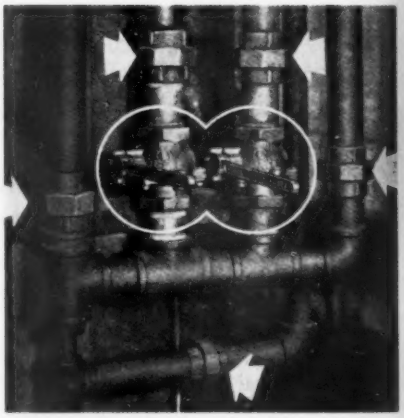
plating solution used with all chrome and bright nickel parts. As a result, plating solution life is extended and fewer defective and rejected parts



occur. Also, rapid backwash is obtained without disassembly. Thus, hazards and labor in normal cleaning of conventional filters for handling of strong acid and alkaline solutions is eliminated.

Circle No. 447 on Inquiry Card—Page 17

Valves Last 4 Times Longer Than Any Other Makes



The two Rockwood valves shown in the accompanying picture are opened and closed 60 times a day under 100 psi. Unfiltered river water flows through them. Under this severe condition both valves have lasted 4 times longer than any other makes. The valves feature full round flow, leak proof service, and quick opening and closing.

Circle No. 448 on Inquiry Card—Page 17

Manual Carrying of Boxes From Floor to Floor Eliminated

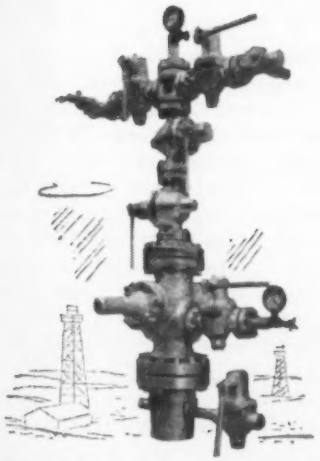
Installation of about 40 feet of Model "R" Versaveyor gravity conveyor, made by The Belt Corporation, eliminated man-handling of cases for a large midwestern market. A powered feed section of the unit automatically transfers cases to the basic conveyor unit, which car-

(Please turn to page 486)



Goetze V-Tite Gasket being installed on flange of new Space Saver Blowout Preventer, designed and manufactured by Cameron Iron Works, Inc., Houston, Texas.

Goetze Gaskets safeguard critical points under severe pressures



Christmas Tree made by Cameron Iron Works, Inc., is equipped with Goetze V-Tite gaskets to provide safe, tight sealing for every joint.

The new "Space Saver" Blowout Preventer made by Cameron Iron Works, Inc., of Houston, Texas, weighs only half as much as earlier equipment and takes only one-half the space. This improved design permits rig platforms to be smaller, makes possible savings on handling and materials.

For this new equipment Cameron chose Goetze V-Tite Gaskets to do the critical job of sealing Ring-Joint flanges. These precision-made gaskets withstand the high pressures encountered in oil and gas production. Goetze V-Tite Gaskets are fabricated to extremely close tolerances to secure perfect matching of rings with flange joints. They are carefully heat-treated to keep hardness below the maximum allowable. This assures proper flow of the gasket without damage to flange surfaces and reduces the necessity for undue bolt stresses.

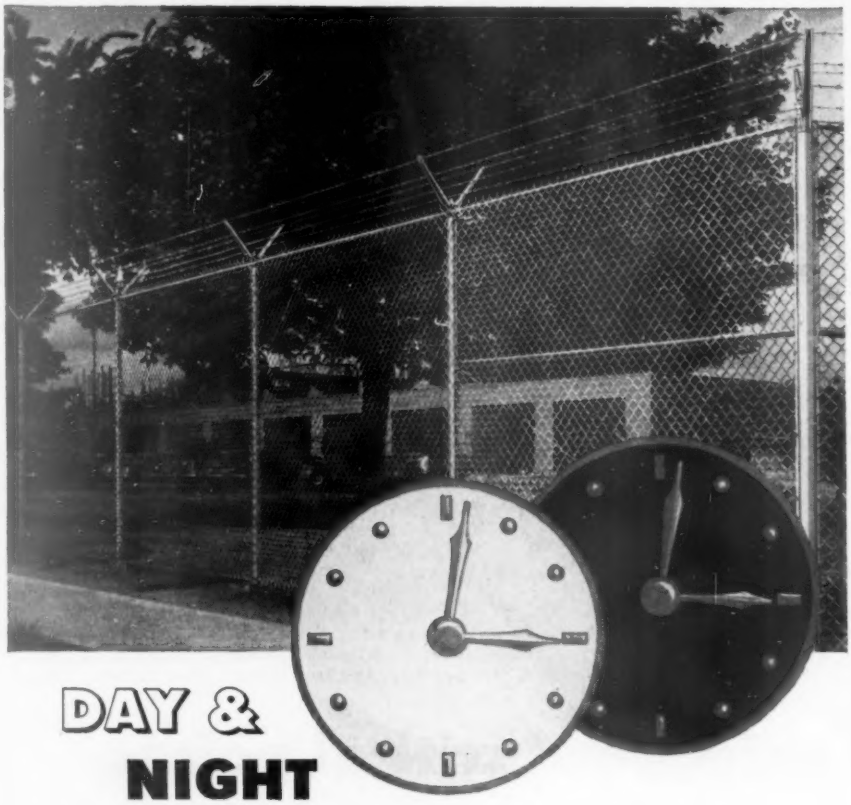
Both standard cross-sectional shapes, the oval (Style 950) and octagonal (Style 951), seal tightly at low bolt stresses. Made to ASA-API standards, they are supplied in metals and alloys offering maximum resistance to service and temperature conditions. In addition to the ASA-API sizes, special sizes ranging from one inch to seven feet pitch diameter are available. Catalog PK-35A gives details, sizes and engineering data. Write for it to Johns-Manville, Box 60, New York 16, N. Y. In Canada, 199 Bay St., Toronto 1, Ontario.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville GOETZE GASKETS

For More Information Circle No. 853 on Inquiry Card—Page 17

ANCHOR FENCE gives your plant and grounds DOUBLE PROTECTION!



DAY & NIGHT

Anchor Fence is one watchman that really gives you double protection at no extra cost. It works *twice around the clock* every day —giving you the best in all-round protection and traffic control. It never relaxes, never needs a vacation. And, there's no charge for overtime.

What's more, the orange and black nameplate that says "Anchor Fence" means your chain link fence is the best money can buy—the fence with the zinc coating applied *after* weaving, not before. Exclusive deep-driven "anchors" hold it permanently in line and erect. The design of its square corner, gate and terminal posts eliminate any possible toe or hand holds.

Get more information and a free estimate now. Call your local Anchor Office or write: ANCHOR POST PRODUCTS, INC., *Industrial Fence Division*, 6615 Eastern Avenue, Baltimore 24, Md.

Anchor Fence®

Division of ANCHOR POST PRODUCTS, Inc.

Plants in: Baltimore, Md.; Houston, Texas; and Los Angeles, Calif.
Branches and warehouses in all principal cities.

For More Information Circle No. 854 on Inquiry Card—Page 17

(*Continued from page* 484)

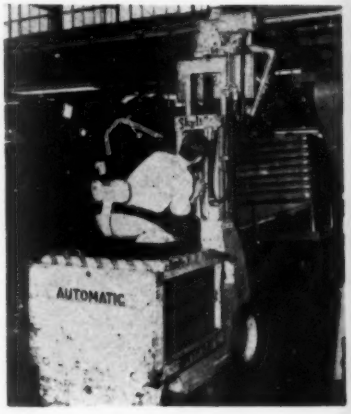
ries the loads from basement to first floor. There's no more heavy lug-



ging for employees, and movement of goods has been speeded substantially.

Circle No. 449 on Inquiry Card—Page 17

Mechanized Materials Handling Cuts Operating Time 75%



Use of Automatic electric industrial trucks in the three-phase materials handling system of General Metal Products' St. Louis plant has reduced operating time 75%. Six men now accomplish the same amount of work formerly requiring 24. The firm's material handling involves shop box handling, die handling and small parts handling. Substituting electric trucks, with special attachments where necessary, for hand trucks, has brought the time reduction and has enabled the company to condense parts-in-progress storage to one-fourth the floor space previously needed.

Circle No. 450 on Inquiry Card—Page 17

FOR FURTHER INFORMATION ON PRODUCTS IN THIS ISSUE PLEASE USE INQUIRY CARD ON PAGE 17

...Another good reason for switching to **Scott Wipers!**

When a workman reaches for a clean, fresh Scott Wiper—he throws a *used* wiper and harmful chips away.

That means far less chance of injured hands and costly scratches and digs in finished parts.

Because they are available in quantity (125 to the box), a clean Scott Industrial Wiper is always at hand. Distribution and control is a simple matter and lost time waiting for wiping materials is greatly reduced.

Scott Wipers are two-ply and tough yet soft and absorbent. Compare them with whatever wiping material you're using now—for cost, for convenience, for performance.

The Scott representative or distributor in your area will be glad to help you set up a production-line demonstration in your plant. Call him or mail this coupon today.

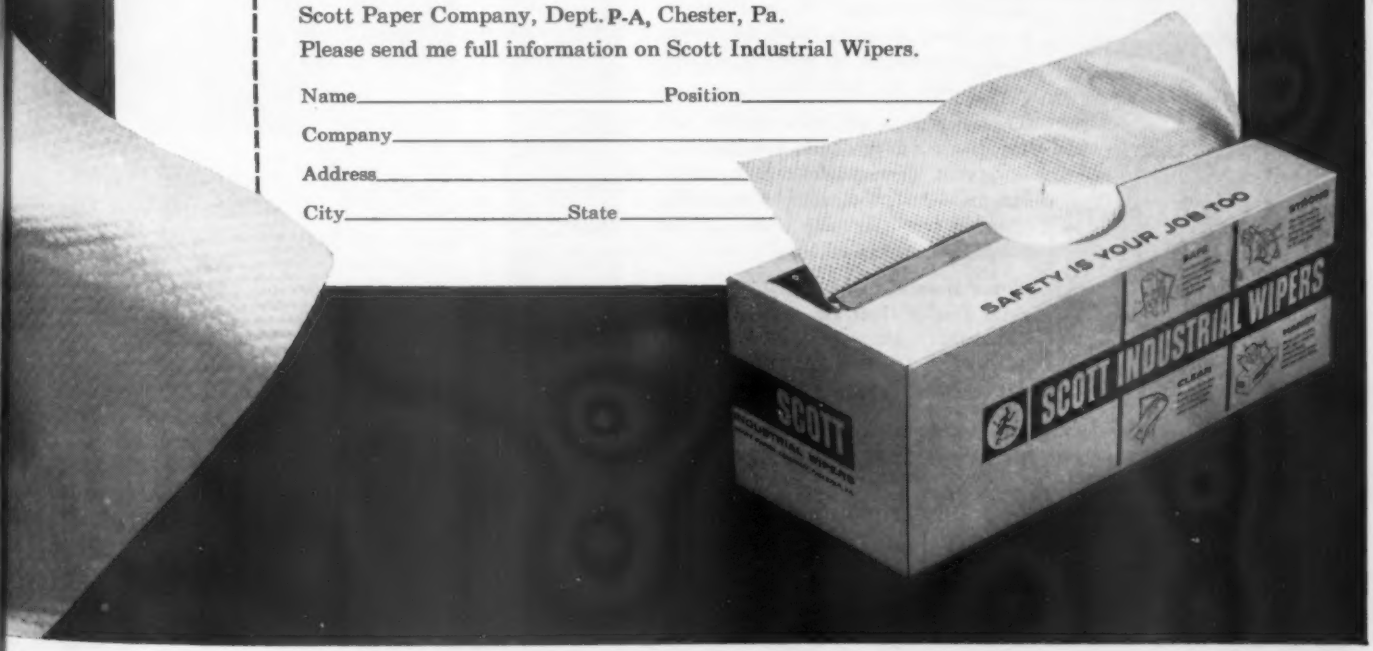
Scott Paper Company, Dept. P-A, Chester, Pa.
Please send me full information on Scott Industrial Wipers.

Name_____ Position_____

Company_____

Address_____

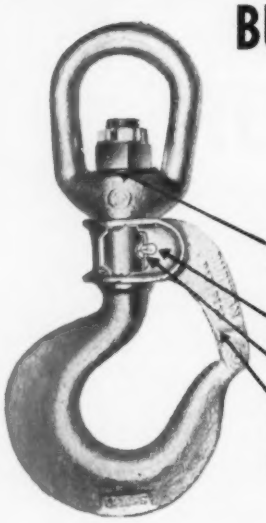
City_____ State_____



For More Information Circle No. 878 on Inquiry Card—Page 17

Bullard Safety Buyer's Guide

BULLARD-BURNHAM HOOKS



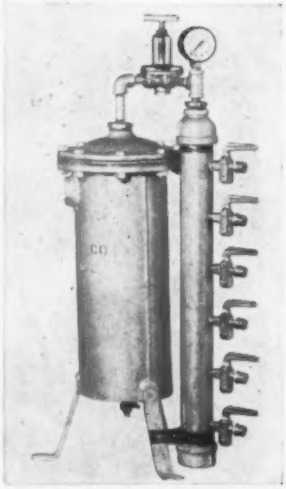
At last a 100% safe hook for every type of equipment; utility and chain hoists, horizontal tuggers, come-a-longs, cranes, block and tackle or snatch blocks. Safety gate automatically locks closed. It cannot be disengaged accidentally. A touch of the finger will release catch to open gate. Available to 50,000 lb. capacity. Write for technical data.

RED IS FOR RIGGER



Bullard's process for manufacturing permanent molded-in colors in glass fiber safety hats and caps have developed a new trend in purchasing head protection. Many industries are selecting hats or caps with a different color for every crew. Red might be for riggers, blue for carpenters, green for safety, yellow for electricians. All colors are available.

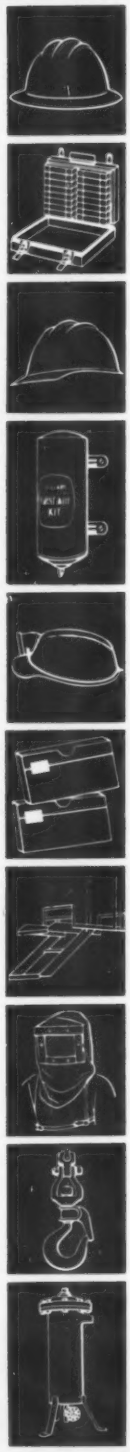
CLEAN COMPRESSED AIR PROTECTS MEN AND MACHINES



Give pure air to workers wearing air-supplied hoods, helmets or masks. Bullard compressed air purifiers remove dust, moisture, and oil fumes from compressed air making it completely safe for breathing.

These purifiers will also rapidly pay for themselves by eliminating grit and dust that damage delicate parts of compressed air tools and by supplying moisture-free air for fine quality lacquering and enameling.

Three sizes available . . . 10 to 150 cubic feet of clear air.



see our catalog in PLANT ENGINEERING FILE or write for copy

EVERYTHING BULLARD IN SAFETY ®

New safety equipment catalog now available . . . write for it!

HARD BOILED

BULLARD

E. D. BULLARD COMPANY · 275 Eighth St., San Francisco, California

For More Information Circle No. 856 on Inquiry Card—Page 17

Strapping Tool Features Automatic Seal Feed

The Stanley Works of New Britain, Conn. announces a new strapping tool which is said to be the only one on the market with automatic seal feed. Outstanding features of the tool, model ESM, are: 1) uniform tightening of every strap, 2) selective tension adjustment with unlimited strap take-up, and 3) an easy-to-load magazine seal feed that takes a clip of 80 seals at a time for faster operation.

Originally developed for the paper industry, the tool is now widely used in palletized packaging operations in many other industries. It automatically tightens the strapping to the desired pre-set tension and cuts and seals with hand-lever operation.

Here's how it works: Steel strapping (¾" x .020 or .023) is inserted in the tool after predetermined tension has been set, the switch is pressed, and the motor tightens the strapping. Cutting, sealing, and feeding of seals is one automatic operation.

Circle No. 451 on Inquiry Card—Page 17

Electric Trucks Gain 20% Storage Space, Reduce Traffic



Inland Steel Products Co. fabricates products of unusual size and shape, so that stacking of skids is impossible. The firm purchased three operator-led platform trucks, electric powered Transporters, made by Automatic Transportation Co. They were custom built with extra-long 96" platforms to support the outsize items, which are 10 ft. long. Ability of the trucks to maneuver at right angles in 10 ft. aisles enabled Inland to set up aisle widths one foot less than was at first thought possible. Thus, the company obtained 20% more storage space than it expected, and traffic and confusion have been reduced.

Circle No. 452 on Inquiry Card—Page 17



My name is mud . . .

. . . **Sylvester A. Mud.** In charge of parts that don't work. My job: fix 'em so they do.

For example, assembly #738419 XF-5Y was always breaking. It cost too much, and weighed too much. My job: double its strength, eliminate its weight, and make it for nothing. Otherwise, my name would be *mud.*

I wired U. S. Steel: "DEAR FRIEND. HELP! MUD."

I met the metallurgist at the airport. He said, "What's your problem?"

"Cost, weight, and strength," I said.

"How about USS "T-1" Steel?" he said. "Yield strength of 90,000 psi. — three times that of ordinary steel. But easy to weld *without* pre- or post-heating. Super tough even at 40°F. below zero, and strong at 900°F. above. Resists abrasion . . ."

I ordered some — and now I'm called Horatio. Now #738419 XF-5Y doesn't break any more.

This fabricated story has no moral, but if you need greater strength and toughness and better weldability in fabricated parts, it has deep significance for you. Namely — maybe "T-1" Steel is what you need.

If you have such a problem, phone, wire or run to our nearest sales office. Or write to United States Steel, Room 4736, 525 William Penn Place, Pittsburgh 30, Pa. Just say, "HELP!"

UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS "T-1" CONSTRUCTIONAL ALLOY STEEL

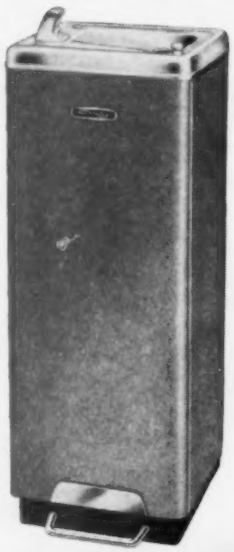
SEE THE UNITED STATES STEEL HOUR. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

USS

UNITED STATES STEEL

For More Information Circle No. 857 on Inquiry Card—Page 17

Guaranty



COOL, COOL WATER FOR A LONG, LONG TIME!

EMPLOYEES GO for the instant pick-up of a refreshing drink of water, cooled just right by a step-saving Cordley Cooler . . .

EMPLOYERS GO for the higher efficiency and morale of employees . . . and the guaranteed trouble-free service that a Cordley gives for years and years. 24 hours a day, 365 days a year, for five years, your Cordley is guaranteed to protect you—it's the most generous 5-YEAR GUARANTY in the entire industry. Cordley and Hayes—specialists in water coolers for over 65 years—don't take lightly their guaranty of 44,030 hours of top water-cooling service. They know that every one of many Cordley models is built to stand the toughest, most demanding service.

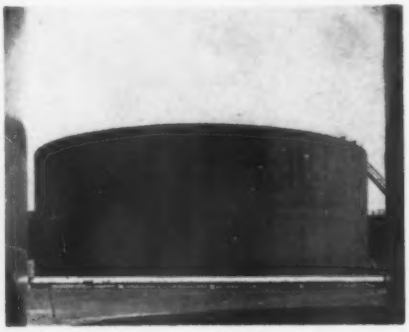
Over a million Cordley Water Coolers have been installed all over the world . . . IN ANY LANGUAGE—THEY'VE GOT TO BE GOOD!

You can find out more about how Cordley Electric Water Coolers can ease a problem in your office or factory by sending for Bulletin Q6. On request, we'll supply the name of your nearest Cordley distributor.

Cordley
NEW YORK

CORDLEY AND HAYES
Drinking Water Equipment Since 1889
443 Fourth Avenue, New York 16, N. Y.
For More Information Circle No. 858 on Inquiry Card—Page 17

Fuel Tanks Insulated to Cut Steam Consumption



The Fuel Oil Corporation of River Rouge, Mich., was faced with a serious problem when its supply of steam needed to heat heavy fuel oil (to make it flow) was curtailed. It used to get waste steam at low cost from a nearby steel mill, but the supply was curtailed because the mill needed some of the steam for other purposes. Fuel Oil Corp. solved its problem by insulating the tanks with 2-inch blocks of Foamglas. This reduced steam consumption considerably.

Circle No. 453 on Inquiry Card—Page 17

Materials Handling System Saves Up to $1000 Weekly



Montague Rod and Reel Co. of Montague City, Mass. suffered from inadequate work and storage space. To efficiently utilize basement and second floor space in its plant and increase its material handling efficiency, the company installed a series of different type Rapistan conveyors. With the new system, overtime work that averaged 25 hours per week has been eliminated. $10,000 per year is saved by consolidating two packing departments. Total savings from more efficient handling total as much as $1000 per week in direct operating costs during peak periods.

Circle No. 454 on Inquiry Card—Page 17

TEXLITE ®

SIGNS OF QUALITY

ALL OVER AMERICA

J. C. PENNEY CO.

Another famous sign quality built by Texlite

The nation's leading firms depend on Texlite for fine signs. That's because Texlite has America's most complete, most modern sign manufacturing plant for building porcelain enamel, plastic and illuminated signs. And because Texlite does a complete job from design to erection and maintenance. Next time you need signs, in any quantity, put Texlite's 76 years of know-how to work for you.

DESIGN • ENGINEERING
FABRICATION • ERECTION
MAINTENANCE

in our 76th year

TEXLITE, INC.
3305 Manor Way • Dallas, Texas
Offices in: New York, Chicago, Los Angeles, Houston, Atlanta, Denver, Tulsa

Manufacturers of quality porcelain enamel and plastic signs for national firms

For More Information Circle No. 859 on Inquiry Card—Page 17

SURVEY PROVED!



a Hillyard FLOOR TREATMENT PLAN Gives You Longer-Lasting Floor Beauty

at a LOWER MAINTENANCE COST

FREE SURVEY OF YOUR PLANT FLOORS

Your nearby Hillyard Maintaineer®, a trained floor consultant, will be glad to make a survey of your floors and prepare a specialized floor treatment plan for you. Half a century of Hillyard experience and leadership stand behind his recommendations.

Let him PROVE to you that Hillyard floor treatments are tailored to give you the surface you want for each type of floor and floor traffic—bring out the beauty of the floor—wear longer—and actually save you money in labor and materials!

There is no charge, no obligation for this service.

Thousands have found the *plus* Values of a Hillyard Floor Survey

- "Simple to apply" — 1954 Hospital of the Year, Illinois
- "Beautiful appearance" — World's largest Fraternal building, Michigan
- "Floors are non-skid and easy to maintain" — A Student Union in Utah
- "This gym floor stood up 14 years without removing finish or re-sanding" — College in Texas
- "Hillyard meets the test of providing our plants with the best-looking floors, the most durable finish, and at the lowest cost" — World-famous bottler, New York State
- "In addition to wearing qualities, there is an intangible factor which makes Hillyard products even more valuable to the user. I refer to the service organization" — Institution in Massachusetts



THERE IS NO CHARGE, NO OBLIGATION FOR THIS SERVICE. MAIL THIS COUPON TODAY.

"on your staff, not your payroll"

Mr. FLOOR HILLYARD TREATMENTS

ST. JOSEPH, MISSOURI

San Jose, Calif. Passaic, N. J.

Branches in Principal Cities

HILLYARD CHEMICAL CO.
St. Joseph, Missouri

Yes! Please have your Maintaineer survey my floors and show how we can reduce maintenance costs.

Name.....

Institution.....

Address.....

City.....State.....

For More Information Circle No. 860 on Inquiry Card—Page 17

with Tannate® you can *really* feel the grip that means higher capacity and lower costs



Take a piece of Tannate Leather Belt and compare its grip with any ordinary Belt.

Place this sample (we'll be glad to furnish you one) on your desk. Press down firmly as you slide it along and see how well it grips. This same glove-like grip means extra capacity on your drives. As you know, extra capacity usually means additional production, longer life, and less maintenance.

This is just one of the many features which makes Tannate the standard for the Industry.

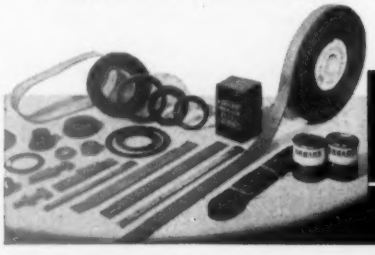
J. E. Rhoads & Sons
2100 W. Eleventh St., Wilmington 99, Del.

Please send me a sample of Tannate Belt. No obligation, of course.

*Name*_____ *Title*_____

*Firm*_____

*Address*_____

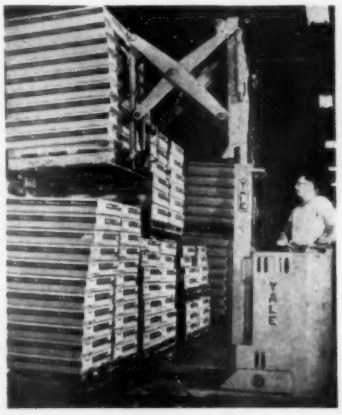


RHOADS
INDUSTRIAL LEATHERS

WILMINGTON • NEW YORK • CHICAGO • ATLANTA

For More Information Circle No. 861 on Inquiry Card—Page 17

Storage Space for 900 Extra Tons Gained With Attachment



Nine hundred extra tons of paper storage capacity resulted when five Yale Warehouser industrial trucks equipped with Extend-A-Load attachments went to work in the Nekoosa-Edwards Paper Company. The pantograph attachment device reaches out to pick up and deposit loads, so traddling pallets and skids are unnecessary. The company was able to cut its conventional 9 ft. 6 in. aisles down to 7 ft., thereby increasing storage capacity from 4500 to 5400 tons.

Circle No. 455 on Inquiry Card—Page 17

Cranes Replace Old Handling Methods; Save 15% In Time



Substitution of four 3-ton 50-foot motorized Cleveland Tramrail cranes for manual and mechanical methods previously used has brought a 15% time saving for Peterson Tractor and Equipment Co., San Leandro, Calif. The cranes are used in the overhaul on Caterpillar equipment.

Circle No. 456 on Inquiry Card—Page 17

Device Permits Deliveries Without Helper

Several manufacturers have made use of a "Frate-Gate" elevating end-

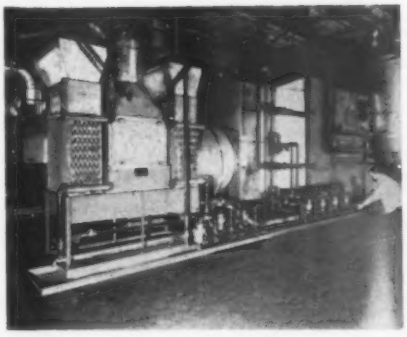
gate to reduce delivery costs and special material handling expenses up to 50% at a cost of less than 50¢ per day. With the device, it is pos-



sible for the delivery truck driver to handle most deliveries alone without a helper. Installed on the rear of a 1½ ton or larger truck, the device will lift or lower loads up to 2000 pounds.

Circle No. 457 on Inquiry Card—Page 17

Chemical-Type Dehumidification Equipment Saves $45,000 Yearly



By using chemical-type dehumidification equipment to dry the air, The Haloid Co., Rochester, obtains air at a proper drying temperature, but low dewpoint, without expensive refrigeration and reheating. The elimination of some 180 tons of refrigeration, as well as reheating equipment, has realized a $45,000 saving annually for the company. The installation of Surface Combustion Corporation's Kathabar units has paid for itself in less than 2 years.

Circle No. 458 on Inquiry Card—Page 17

Re-Use of Corrugated Cartons Cuts Costs 25-50%

One manufacturer found that it could reduce costs substantially by re-using the tremendous number of corrugated cartons used to pack-

(*Please turn to page* 496)

RECENT ADDITIONS

to the Steel-Grip Line of Safety Apparel

The four additions to the Steel-Grip line shown on this page have been developed to meet the latest safety needs of industry. Each material is the best we know of for its specific use. Two of them are "firsts" with Steel-Grip. We are able to present these lines simply because we are constantly looking for new and better ways to meet the safety buyer's needs. On the other hand, they explain why most safety buyers turn to Steel-Grip for completely adequate protection, dependable quality, long wear and low man-hour safety apparel costs. Quality manufacture is standard practice at Steel-Grip. And if you judge a safeguard not by its first price but by its man-hour cost, you will find that Steel-Grip is most economical of all. You are *safe*—when you buy safety apparel from Steel-Grip. All materials, leather, wool, Perma-Proof, flameproof duck, etc. Ask for sample swatches and for the catalog of our complete line. Write today.

Steel-Grip
INDUSTRIAL
Safety Apparel
TRADE-MARK
TO BE SURE OF THE GENUINE, DEMAND THIS TRADE-MARK

INDUSTRIAL GLOVES COMPANY
A Corporation
3002 Garfield Street, Danville, Illinois
(In Canada: Safety Supply Co., Toronto)



JAXCOLITE*
Amazing new compound makes asbestos, duck and burlap extremely resistant to chemicals, heat, molten metal splash, oil and water. Long wear, low cost. Users won't buy anything else. Nothing to compare. Coats, pants, aprons, sleeves, leggings, spats, curtains, gloves and mitts with Jaxcolite backs.
*A product of Jaxind, Inc.



DYNEL CLOTHING
Resistant to most chemicals. Outwear other materials many times. Stand repeated launderings. Well designed, in attractive shades.



HEAT REPELLENT ALUMINIZED ASBESTOS OR DUCK
Aluminized surface on asbestos or flameproofed duck reflects up to 95% radiant heat. Result is cool, safe protection. In all body protection garments.



CERTIFIED ASBESTOS SAFEGUARDS
A Steel-Grip *first*. We maintain a laboratory, test raw materials, must contain min. 83% asbestos, max. 17% cotton, test to min. warp tensile strength of 145 lbs., woof tensile strength of 65 lbs., min. wt. 2.47 lbs. sq. yard. We so certify all Steel-Grip Asbestos coats, pants, gloves, mitts, sleeves, etc. Demand Certified Label.

For More Information Circle No. 862 on Inquiry Card—Page 17



CHECK your tackle blocks for best service. Worn sheave grooves, bearings and pins are expensive.

LOWER HANDLING COSTS

are often attained by using "the one BEST block" for a specific load. MADESCO Blocks correctly designed and engineered for your specific operation may effect savings YOU can benefit from!

Twenty-five years' experience in designing and making blocks for "a-thousand-and-one" different uses means that MADESCO Blocks help speed hoisting, give trouble-free service, help prolong rope life.

Write—today—for bulletins and consult us about your specific needs.

MADESCO TACKLE BLOCK CO.
EASTON, PA.

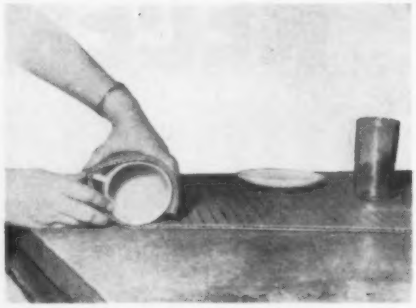
MADESCO BLOCKS

HAE-M593—2-54

For More Information Circle No. 863 on Inquiry Card—Page 17

(*Continued from page 495*)

age incoming shipments. Heavy duty corrugated sheets which are too tough and rigid normally to permit re-use as wrapping material are processed on a Kord-Mar crimper.



Before being made pliable on this machine, the material is cut to size on a Kord-Mar cutter. Savings in material cost more than off-set expenditures for labor and overhead occasioned by the re-processing.

Circle No. 459 on Inquiry Card—Page 17

Special Clamps Solve Problem, Save $8320 Per Truck a Year

Installation of special pronged clamps on fork trucks at a Rhode Island textile mill meant a direct

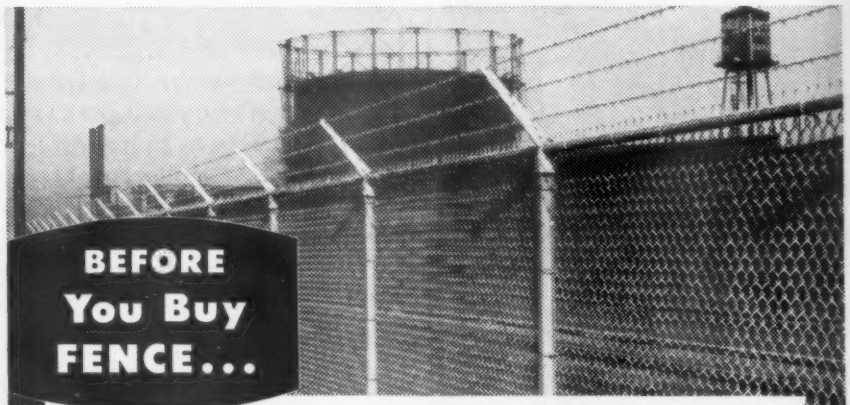


saving of $160 per week per truck, or a total of $8320 per truck annually. In addition, the messy problems involved in handling the wool were eliminated. Originally purchased for general warehouse work, Mercury "Jeep" fork trucks were fitted with the attachments to do easily what had been a tough job.

Circle No. 460 on Inquiry Card—Page 17

Eliminates 1½ Men Per Shift Moving Scrap

Cincinnati Gear Co., Cincinnati, Ohio, operating a large number of lathes and gear cutting machines constantly, has to dispose of large volumes of turnings, borings and other metal scrap. Originally hand



BEFORE You Buy FENCE...

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The Only—
Chain Link Fence
made of KONIK STEEL

Konik is a special alloy steel that gives Continental Chain Link Fence *increased rust resistance* for longer life and lower upkeep costs. Its *greater tensile strength* (over 85,000 lbs. per sq. inch) withstands abusive shocks and stresses, extremes of temperature, without sagging or losing alignment. *Bright-galvanizing* after weaving and 13 other features mean extra protection and fine appearance. Complete engineering and construction service.

KONIK STEEL

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PRODUCERS OF: Manufacturer's Wire in many sizes, shapes, tempers, and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, and special wire. ALSO Coated and Uncoated Steel Sheets, Nails, Continental Chain Link Fence, and other products.

For More Information Circle No. 864 on Inquiry Card—Page 17

wheelbarrows were used, resulting in excessive travel time to the disposal point. Power wheelbarrows replaced the hand wheelbarrows. It



has resulted in speeding up scrap disposal so that 1½ men less are needed per shift and the power wheelbarrows paid for themselves in labor savings in short time.

Circle No. 461 on Inquiry Card—Page 17

Guide Channel Packing Cost Cut $12.75 per M.



A manufacturer of aluminum guide channels for combination storm windows found that a change in material used for packaging could reduce packaging material cost, reduce shipping weight, and cut waste. Formerly the channels were wrapped with used scored 125# double face 12″ x 10′ sheets. By switching to 4 scored single face Sherman corrugated, the company saves $12.75 per M pieces in material cost and has 10% less waste.

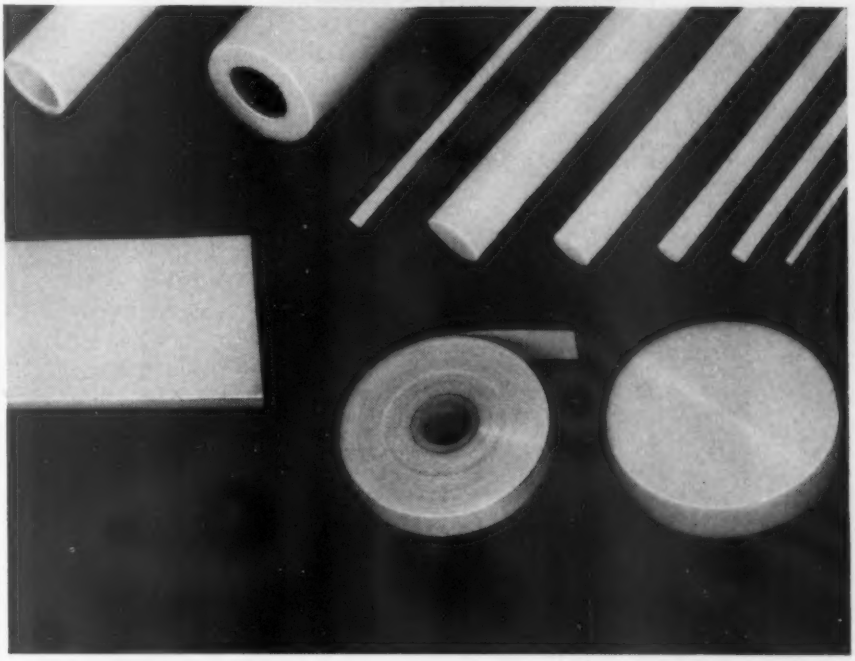
Circle No. 462 on Inquiry Card—Page 17

Unloading Job Done in 7½ Instead of 40 Man-Hours.

Foodstuffs at the rate of 5,000,000 lb a month are handled by P. B. Cartage & Warehouse Co., Inc., Detroit, Mich. Formerly all handling was done by hand trucks. In order to keep costs down, the firm purchased six Towmotor fork lift

(*Please turn to page* 498)

POLYPENCO® NYLON SHAPES



You can get *EXTRA* Quality in POLYPENCO Nylon Shapes . . . without *EXTRA* cost!

• Here's where you can put an end to costly production losses through rejects and stoppages. POLYPENCO uniform high quality is the result of constant close supervision over every phase of manufacture. Every inch like every other inch — and POLYPENCO quality costs you no more!

Polymer supplies POLYPENCO Nylon Shapes in rod, slab, tubing, tubular bar and strip for fast machining on the metalworking tools in your own shop. From these stock shapes it's a quick and economical step to make your own gears, bushings, bearings, cams and other parts—thus eliminating expensive molding dies.

Stock sizes available for immediate delivery. Write for prices and the name of your nearest POLYPENCO supplier.

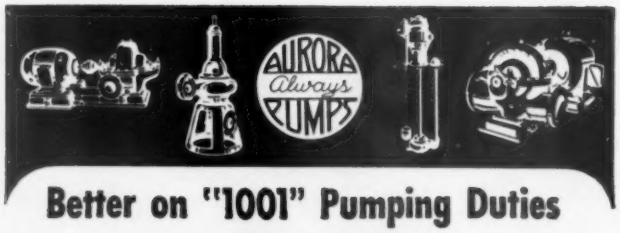
The POLYMER CORPORATION of Penna. • Reading, Penna.
In Canada: Polypenco, Inc., 2052 St. Catherine, W., Montreal, P.Q.

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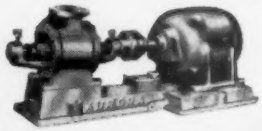
*trademark for Du Pont tetrafluoroethylene resin

For More Information Circle No. 866 on Inquiry Card—Page 17

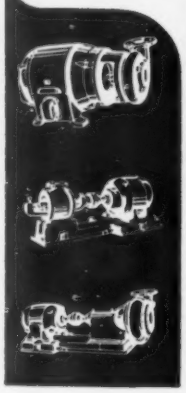


Better on "1001" Pumping Duties

Capacities to 150 G.P.M.



Heads to 500 Ft.



APCO Two-Stage Turbine Type Pump for High Pressure Service

Apco—the pump with but one moving part, the impeller — is famous for long-lived, efficient performance on small capacity, high head duties. Available in Single Stage, Two Stage and 4-Stage Tandem for high pressures — and Water Jacketed for high temperature and highly volatile liquids.

Write for Bulletins 111, 111-A, 111-WJ



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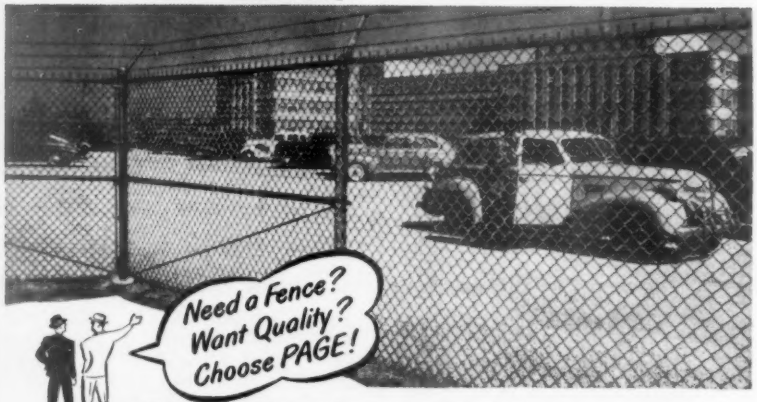
AURORA PUMP DIVISION
THE NEW YORK AIR BRAKE COMPANY

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For More Information Circle No. 842 on Inquiry Card—Page 17

PAGE chain link FENCE

America's First Wire Fence—since 1883



• You need a fence if your property lacks protection against common hazards. And you certainly want time-tested quality in the safeguard you provide. Whether you choose heavily galvanized Copper-Bearing Steel, corrosion-resisting Aluminum, or long-lasting Stainless Steel, PAGE Fence is quality controlled from raw metal to rugged fence erected on metal posts deep-set in concrete. Available are 8 basic styles, varied by heights, types of gates, top rails, and barbed wire strands for added security. Finally, your PAGE Fence will be expertly erected by a reliable, technically trained firm. For important fence data and name of nearest PAGE firm—

Write to PAGE FENCE ASSOCIATION, Monessen, Pa., or look in Thomas' Register for listing of Page Chain Link Fence Distributors under "PAGE STEEL AND WIRE DIVISION," or see MacRae's Blue Book for listing under "FENCING, WIRE, LINK," or consult Sweet's Industrial Construction File.

PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE COMPANY, INC.

For More Information Circle No. 866 on Inquiry Card—Page 17

(*Continued from page 497*)

trucks. Savings effected are shown by the fact that previously it required eight men working five hours to unload 1600 cases from a



freight car. Two fork lift trucks, working as a team, now do this in 2½ hrs, requiring two fork lift operators and one palletizer.

Circle No. 463 on Inquiry Card—Page 17

Triple Storage Space With No Additional Building



F. H. Lawson Co. of Cincinnati uses sheets of steel and small parts in making waste paper baskets, metal cabinets, etc. Small parts are stored in about 1000 box trucks. The trucks use casters to give portability but, by a unique method, they are palletized to permit them to be piled on top of each other thereby effectively tripling available storage space. They can be palletized because a length of 4″ x 4″ lumber placed across the top of the truck acts like a pallet in holding the truck that is placed on top in position.

Circle No. 464 on Inquiry Card—Page 17

Powered Materials Handling Units Pay for Selves in 60 Days

Turnover of men at the Denver Fire Clay Company was high when various types of materials—bricks,

ashes, cement and debris — were moved by "buggy." By switching to Bell Prime Movers power-driven units, the company not only im-



proved working conditions but speeded up operations, and was able to keep work going in all kinds of weather conditions. The units paid for themselves in increased production and labor savings in less than 60 days.

Circle No. 465 on Inquiry Card—Page 17

Fork Truck Slashes Bale Handling Time By 87%

Lehigh Spinning Co. uses a Mercury "Yak" truck with a special bale-handling attachment to transfer baled jute from warehouse to operating floor. Under the old system, two men using hand trucks spent an entire day man-handling the daily requirement of 120 bales. Now the operation takes only two hours of the truck's operating day —a time saving of 87%.

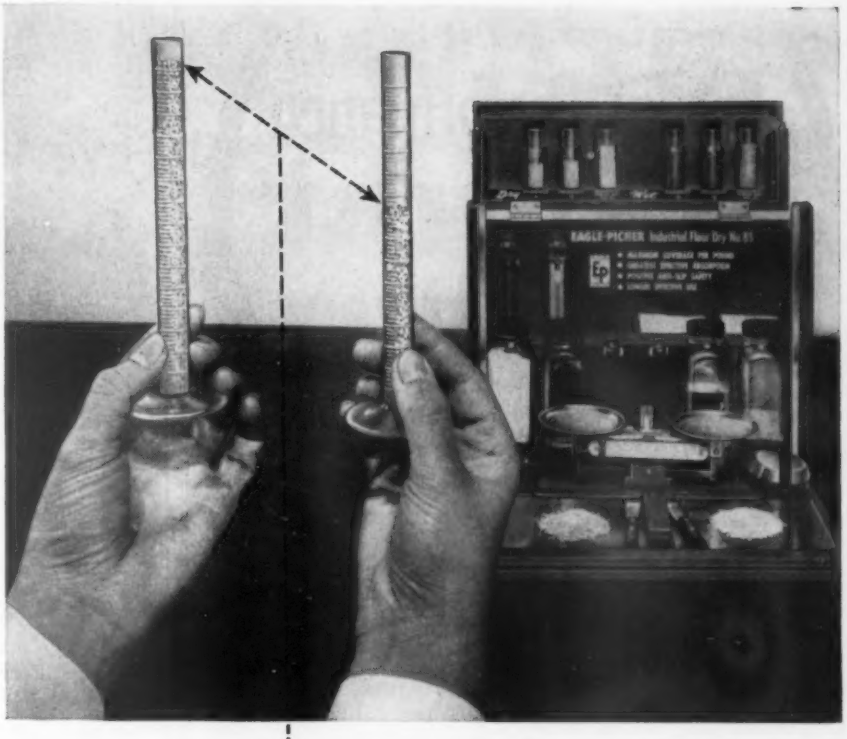
Circle No. 466 on Inquiry Card—Page 17

Inclined Belt Conveyor Cuts Truck Loading Time to 1½ Hrs.



Moving goods from a basement storage area to the loading dock was causing trouble for the Norton Co. Loading batches of material on the elevator, moving up or down, and unloading the elevator was causing delays, setting up congestion on the loading dock. Putting in a Lamson Corp. inclined belt conveyor solved the problem nicely. It provides uniform flow to and from the dock and has actually reduced truck loading time from 4 to 1½ hours.

Circle No. 467 on Inquiry Card—Page 17



There's a BIG difference in floor absorbents

TEST IT Yourself!

IN YOUR OWN OFFICE, make this simple 15-minute test. Compare Eagle-Picher Industrial Floor-Dry to any other floor absorbent.

HERE'S WHAT YOU'LL PROVE TO YOURSELF about safe, skid-proof Eagle-Picher Floor-Dry: It's extremely insoluble, absorbs more oil and water. It goes further, provides much greater coverage. It reflects more light, brightens the work area. It's non-combustible, has no chemical reaction. It lasts longer, saves you money!

Since 1843 EAGLE EP PICHER



WRITE TODAY. Our Eagle-Picher representative will bring the portable laboratory to your office where you may make this test yourself. The Eagle-Picher Company, Cincinnati 1, Ohio.

For More Information Circle No. 867 on Inquiry Card—Page 17

For Top Performance STAONAL® Marking Crayons

No.
1 C. T. Special for China, Tin, Porcelain, Baked Enamel
2 for General Marking
4 for Glass, Cellophane, Plastic
5 for Leather, Fabrics
9 for Wet or Dry Soft Lumber
11 for Rubber and Rubber Products
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Permanent!
Non-smudging!
Waterproof!
Economical!

You get better service from these better-quality marking and checking crayons. All are laboratory- and field-tested for top performance, whatever the requirement.

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Makers of
World-Famous CRAYOLA® Crayon

For More Information Circle No. 868 on Inquiry Card—Page 17

Every Purchasing Agent Should Have This Book

"Profiting From Industrial Standardization"—$5.50

By Benjamin Melnitsky
Foreword by Stuart F. Heinritz

You will find complete and down-to-earth information on materials standards and specifications . . . purchasing, process and finish specifications . . . parts standards . . . manufacturing standards . . . design practice standards . . . proper review intervals . . . and on through the entire subject of how your company can benefit from a standards program.

How to use tested methods to develop and revise standards—how to organize and use a nomenclature system—how to allocate standards activities, responsibilities and authority—how to organize company standards—all these and more are explained thoroughly and concisely in this practical guidebook to industrial standardization.

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For More Information Circle No. 880 on Inquiry Card—Page 17

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Purchasing Agent, 15 years with large Industrial Concern. Available June 1st. Complete resume on request. Write Box 1453, Purchasing, 205 East 42nd St., New York 17, N. Y.

Assistant Purchasing Agent since completing college 1950. Experience in buying raw materials, fabricated parts, operating supplies, and capital equipment for automotive parts supplier. Desire position with better potential. Write Box 1450, Purchasing, 205 East 42nd St., New York 17, N. Y.

Purchasing Agent or Assistant, 47; 4½ years present company—experience in procurement of heavy machinery and parts, tools, (portable power) lumber, packaging, maintenance, office equipment and supplies, inventory control system. Present contract near completion. Write Box 1451, Purchasing, 205 East 42nd St., New York 17, N. Y.



Save up to $500 a year per truck

Write to
PEACOCK CORP.
WESTFIELD, N. J.



Now... Bristol thermocouples with metal-ceramic protecting tubes

Bristol's new metal-ceramic LT-1 protecting tubes are the most important advance in thermocouple technology in years.

Combining the thermal conductivity and shock resistance of metal with the corrosion and oxidation resistance of ceramic materials, the new protecting tubes will last far longer than ordinary tubes, give you closer control and faster response.

Here are the advantages of the metal-ceramic LT-1's

- Resistance to combustion gases at temperatures up to 3100°F
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- Greatly superior to most ceramics in resistance to thermal shock
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Get the whole story on Bristol's new tubes. Write for Bulletin P1261 today. The Bristol Company, 124 Bristol Road, Waterbury, Conn.

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Points the Way in Human-Engineered Instrumentation

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

For More Information Circle No. 869 on Inquiry Card—Page 17

GE WATER COOLERS



hardy... FOR THE FACTORY

handsome... FOR THE OFFICE

CHECK ✓ THESE OTHER G-E FEATURES

- ✓ **FRESH COOL WATER** always! No squirt, no drip! Controlled water flow.
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P.S. —G-E BOTTLE-TYPE COOLERS also available. No plumbing required.

Call your local G-E dealer for information or write General Electric Co., 5 Lawrence St., Bloomfield, N. J.

Progress Is Our Most Important Product

GENERAL ELECTRIC

For More Information Circle No. 870 on Inquiry Card—Page 17

LETTERS...

GOVERNMENT BUYING OFFICES

Would you be able to advise me regarding the purchasing offices of U. S. Government Agencies? We are producing a high quality, low priced ballpoint pen, which we believe the Post Office and other Government branches would be interested in.

Ben Koodin
Anchell Corporation
St. Thomas, Virgin Islands

● The Small Business Administration publishes a 92-page "U. S. Government Purchasing Directory" listing the location of all the major purchasing offices of both the military services and civilian agencies of the Federal Government, with a coded index of the items purchased at each location. Pens, for example, are purchased at 7 of the military procurement offices and 14 civilian offices. Copies can be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C., at 50 cents per copy.

TRAINING AIDS WANTED

We have recently inaugurated a Value Analysis program in our purchasing department. It has been quite successful to date, but we are planning to further increase its effectiveness by organizing periodical meetings with department heads, engineers and foremen.

Do you have knowledge of any of the larger manufacturers who have had Value Analysis or Purchasing Engineering departments established for some time and who may have produced training films, slides or posters which could be borrowed or rented for our use in these meetings?

B. B. Cochran, Jr., Pur. Eng.
Utility Appliance Corporation
Los Angeles, Cal.

● If any readers have available visual training aids relating to Value Analysis, their cooperation will be most helpful in promoting and extending the application of such techniques. PURCHASING will be glad indeed to pass along information concerning any such material which may be available.

Meanwhile, our suggestion is the reminder that there is a considerable volume of excellent published material on the subject, well adapted to training purposes through use of a reflector type projector which will throw a magnified image on a screen direct from printed copy.—Ed.

POLICY MANUALS

We have read with great interest the article in your April issue entitled "The Policy Manual—Keystone of Today's Purchasing", by Julian G. Davies. We would very much appreciate having the names of several companies which are using manuals such as described in this article, in order that we may contact them to obtain guidance and supplemental ideas in the preparation of a similar manual.

E. F. Erler, Pur. Dept.
Anheuser-Busch, Inc.
St. Louis, Mo.

● Purchasing department manuals described in previous articles in PURCHASING include those of the following companies:

Aluminum Company of America, Pittsburgh, Pa.

American Tobacco Co., New York, N. Y.

Bigelow-Sanford Carpet Co., New York, N. Y.

Consolidated Vultee Aircraft Corp., San Diego, Cal.

Dura Div., Detroit Harvester Co., Toledo, Ohio.

Foxboro Co., Foxboro, Mass.

J. M. Huber Corp., New York, N. Y.

International Resistance Co., Philadelphia, Pa.

McCulloch Motors, Los Angeles, Cal.

Rheem Mfg. Co., New York, N. Y.

Rockwell Mfg. Co., Pittsburgh, Pa.

Texas Gas Transmission Corp., Owensboro, Ky.

City of Wichita, Kansas.

INVOICE CHECKING

Within the past few years an article appeared in PURCHASING or in one of the hospital trade magazines. I do not know the exact title, but the article had reference to why it was beneficial for the purchasing department to receive invoices so that they might be checked before going to accounting. Can you help us locate the article?

F. W. Duran, Pur. Agt.
Hillcrest Medical Center
Tulsa, Okla.

● See "Who Should Check Invoices?" (Sept. 1952 issue, page 77)—Ed.

N.A.P.A. BOOKLET

Please send us one copy of the N.A.P.A. publication, "Suggestions for Development, Recording and Use of Purchasing Policies and Procedures", mentioned on page 115 of your April issue in the article on "The Policy Manual".

L. T. Hardman, Pur. Agt.
Carpenter Body Works, Inc.
Mitchell, Indiana

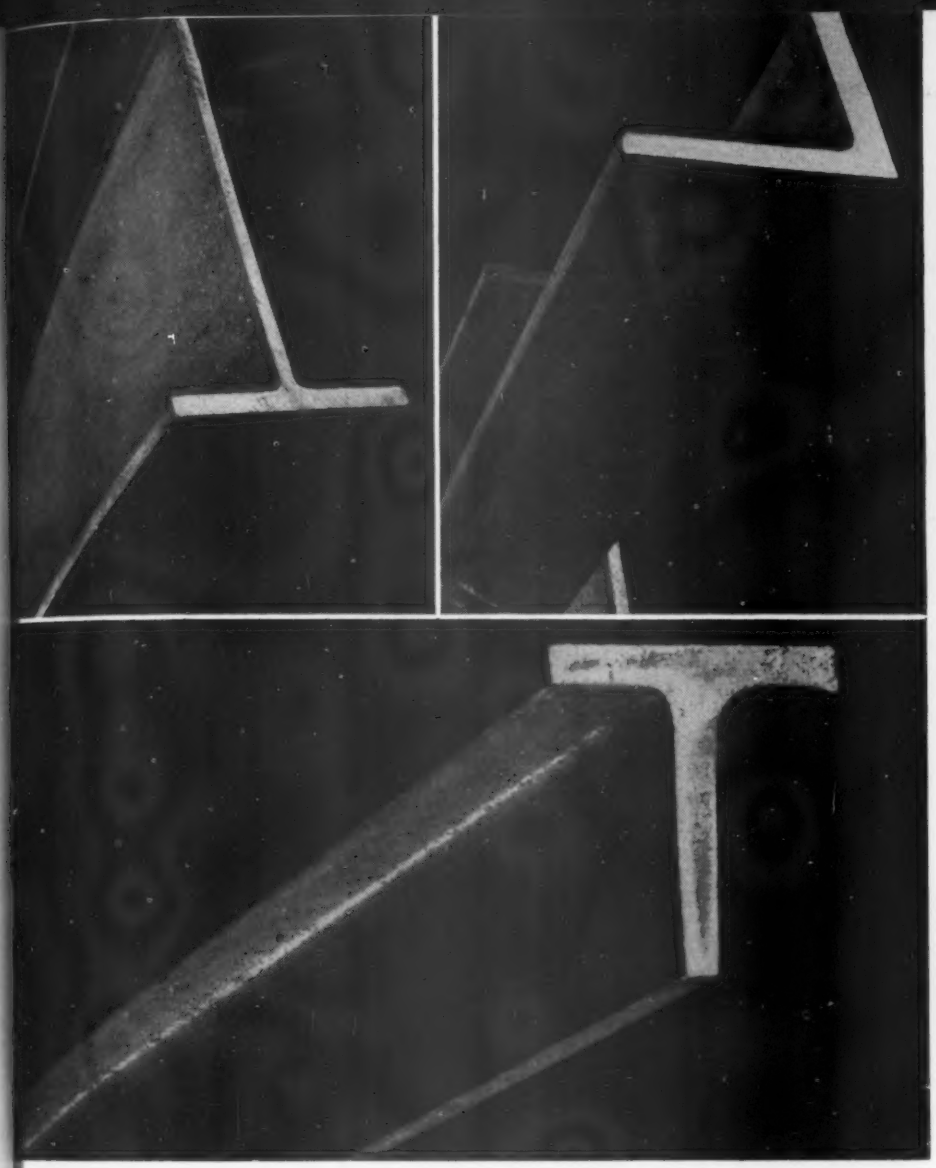
● Several requests for this publication have been received. The booklet is issued by the National Association of Purchasing Agents, 11 Park Place, New York 7, N. Y., and requests should be addressed to that office. It is our understanding that distribution is restricted to Association members only.—Ed.

EDUCATIONAL ACTIVITIES IN BRITISH ASSOCIATION

Your film "Industrial Purchasing" has now been seen by practically all our Branches of the Purchasing Officers Association, and now I tell our members that I am so familiar with it myself that if the sound track ever breaks down I can take over! The more I see it, however, the more impressed I am with the way in which practically every facet of buying has been covered, sometimes by merely a word or two, within a very short time.

You may also like to know that your textbook is being increasingly widely used over here. We have just redrafted the syllabuses of the two main subjects in our Final Examination, and we have found "Purchasing Principles and Applications" of the utmost value in this work, and in preparing the detailed lecture notes which we have drawn up to assist the members who are now teaching our subjects in technical colleges all over the country.

J. R. Blinch, Secretary
Purchasing Officers Association
London, England



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Advertisers IN THIS ISSUE



A

Abrasive Products, Inc. 270
Ace Drill Bushing Co. 282
Acme Chain Corp. 162
Acushnet Process Co. 196
Aero Mayflower Transit Co. 374
Aeroquip Corp. 437
Air Express Div., Railway Express Agency, Inc. 352
Air Reduction Sales Co. & Subsidiaries 266, 267
Ajax Flexible Coupling Co. 194
Alan Wood Steel Co. 77
Allegheny Ludlum Steel Corp. 95
Allen-Bradley Co. 297, 298
Allen Mfg. Co. 175
Allmetal Screw Products Co., Inc. 198
Alloy Metal Wire Div., H. K. Porter Company, Inc. 116
Alloy Steel Products Co., Inc. 455
Aluminum Company of America 224, 232, 233, 505
American Airlines, Inc. 372, 373
American Brass Co. 123, 124
American Chain & Cable Co., Inc. 34
American Felt Company 111
American Hard Rubber Co. 118
American Phenolic Corp. 139
American Screw Co. 137
American Steel & Wire Co. 127, 148, 149, 491
American Telephone & Telegraph Co. 470
American Telephone & Telegraph Co., Long Lines Dept. 25
American Welding & Mfg. Co. 16
American Writing Paper Corp. 402
Anaconda Copper Mining Co. & Subsid. Cos. 123, 124
Anchor Post Fence Co. 486
Ansul Chemical Co. 425
Anti- Corrosive Metal Prod. Co., Inc 202
Apex Machine & Tool Co. 278
Arrow-Hart & Hegeman Elec. Co. 301
Associated Spring Corp. 217
Athenia Steel Co. 125
Atlantic Screw Works, Inc. 159
Atlas Plywood Corp. 361
Atlas Screw & Specialty Co. 180
Aurora Pump Div., The New York Air Brake Co. 498
Automatic Electric Co. 327

B

Babcock & Wilcox, Refractories Div. 431
Babcock & Wilcox, Tubular Products Div., Fittings Dept. 445
Baltimore & Ohio Railroad, Freight Dept. 6
Baltimore Sales Book Co. 403
Barnes Co., Wallace 217
Barnes Co. Ltd., Wallace 217
Barnes-Gibson-Raymond 217
Bassick Co. 508
Bath & Co., Inc., John 271
Bay State Abrasive Products Co. 250, 251
Behr-Manning Corp. 261
Bendix Aviation Corp., Eclipse Pioneer Div. 231
Bethlehem Steel Co. 342
Biddle Screw Products Co. 210
Binney & Smith Co. 500
Black & Decker Mfg. Co. 241
Blake & Johnson Co. 159
Bonney Forge & Tool Works 161
Borroughs Mfg. Co., Subsidiary Amer. Metal Prod. Co. of Detroit 347
Bostitch 346
Bot ield Refractories Co. 507
B wer Roller Bearing Co. 145
Bowers Battery & Spark Plug Co. 350
Brad Foote Gear, Inc., Sub. Amer. Gear & Mfg. Co. 192
Brainard Steel Div., Sharon Steel Corp. 101
Bridgeport Brass Co. 78
Bristol Brass Corp. 82
Bristol Co. 501
Brown Company 410
Browning Mfg. Co. 478
Buffalo Bolt Co., Div. of Buffalo-Eclipse Corp. 170
Buffalo Forge Co. 487
Bullard Co., E. D. 490
Bulldog Electric Products Co. 305
Bunn Co., B. H. 378

C

Caledonia Electronics & Transfomer Corp. 318
Campbell Chain Company 122
Carborundum Co. 245, 246
Carlson, Inc., G. O. 228
Carey Mfg. Co., Philip 467
Carpenter Alloy Tube Div. 114
Carter's Ink Co. 400, 401, 408
Central Screw Co. 159
Century Electric Company 1
Chace Co., W. M. 220
Chain Belt Company 435
Champion Lamp Works 312
Chase Brass & Copper Co., Inc. 131
Chesapeake & Ohio Railway 30
Chester Hoist Div., National Screw & Mfg. Co. 348
Chicago Rawhide Mfg. Co. 474
Chisholm-Moore Hoist Div., Columbus McKinnon Chain Corp. 339
Cities Service Oil Co. 439
Classified Advertising Section 500
Cleveland Container Co. 276
Colorado Fuel & Iron Corp., Wickwire Spencer Steel Div. 341
Colson Corp. 343
Columbia-Geneva Steel Div. 127, 148, 149, 491
Columbia Southern Chemical Corp. 73
Conover-Mast Purchasing Directory 8
Continental Diamond Fibre Co. 129, 183
Continental Screw Co. 153, 159
Continental Steel Corp. 496
Copperweld Steel Co. 87
Cordley & Hayes 492
Crane Company 14
Crosby Co. 213
Crouse-Hinds Co. 319
Crucible Steel Co. 79, 110, 117, 147
Curtis Pneumatic Machinery Div., Curtis Mfg. Co. 23

D

Darling Valve & Mfg. Co. 482
DeLaval Steam Turbine Co. 211, 471
Detrex Corp. 283
Detroit Stamping Co. 174
Disston & Sons, Inc., Henry 249
Dixie Leather Corp. 188
Dockson Corp. 273
Dodge Mfg. Corp. 209
Dolge Co., C. B. 454
Dunbar Bros. Co. 217
duPont de Nemours, E. I. 81, 102
Duro-Test Corp. 320

E

Eagle Lock Co., The 159
Eagle Mfg. Co. 484
Eagle-Picher Sales Co., The 499
Elastic Stop Nut Corp. of America 187
Electro Metallurgical Co. 98, 99
Emerson Electric Mfg. Co. 215
Enterprise Galvanizing Co. 112
Esterbrook Pen Co., The 405
Ex-Cell-O-Corp. 21, 243
Exide Industrial Div., The Electric Storage Battery Co. 345

F

Faber Pencil Co., Eberhard 402
Facit, Inc. 407
Fafnir Bearings Co. 197
Faultless Caster Corp. 350
Federal Telephone & Radio Corp. 313
Federated Metals Div., Amer. Smelting & Refining Co. 108
Firth Sterling, Inc. 130
Fiske Bros. Refining Co., Lubriplate Div. 460
Flexonics Corp., Chicago Metal Hose Div. 480
Forest City Foundries Co. 190
Fort Howard Paper Co. .....3rd Cover
Foster Co., L. B. 380
French & Hecht Div., Kelsey-Hayes Wheel Co. 232
Frigidaire 406

G

Gair Company, Inc., Robert 363, 364, 365, 366
Garlock Packing Co. 202
Garrett Co., Inc., Geo. K. 160
Gates Rubber Co. 19
Gaylord Container Corp. 357
General Box Company 381
General Dynamics Corp., Electro Dyn. Div. 307
General Electric Co.
Air Conditioning & Water Coolers.... 501
Apparatus Div. 289, 294, 295, 314, 315
Lamp Div. 310
Wiring Device Div. 322
General Industries Co. 214
Gilbert Paper Company 399
Gits Bros. Mfg. Co. 173
Goodrich Co., B. F. .....
Goodyear Tire & Rubber Co., Inc. 9, 11
Gould-National Batteries, Inc. 328
Graton & Knight Company 188
Graybar Electric Co., Inc. 4, 293
Great Lakes Screw Corp. 159
Greenfield Tap & Die Corp. 265
Gulf Oil Corporation 465

H

H & H Tube & Mfg. Co. 97
Handy & Harman 106
Hanson-Van Winkle-Munning Co. 247
Harper Co., The H. M. 159
Harter Corp. 404
Hassall, Inc., John 184
Heller Bros. Co. 279
Hillyard Chemical Co. 493
Hinde & Dauch 3
Holo-Krome Screw Corp. 195
Hoover Co., The 316
Hudson Pulp & Paper Corp. 3
Hussey & Co., C. G. 85
Hyatt Bearing Div., General Motors Corp. 181
Hy-Pro Tool Co. 275

I

Illinois Gear & Machine Co. 229
Illinois Tool Works, Shakeproof Div. 201
Imperial Brass Mfg. Co. 179
Industrial Gloves Co. 495
Industrial Tape Corp. 393
Inland Container Corp. 371
Inland Steel Co. 8
Insulation Manufacturers Corp. 233
International Nickel Co. 86
International Packings Corp. 188
I-T-E Circuit Breakers Co., Switchgear Div. 324, 325

J

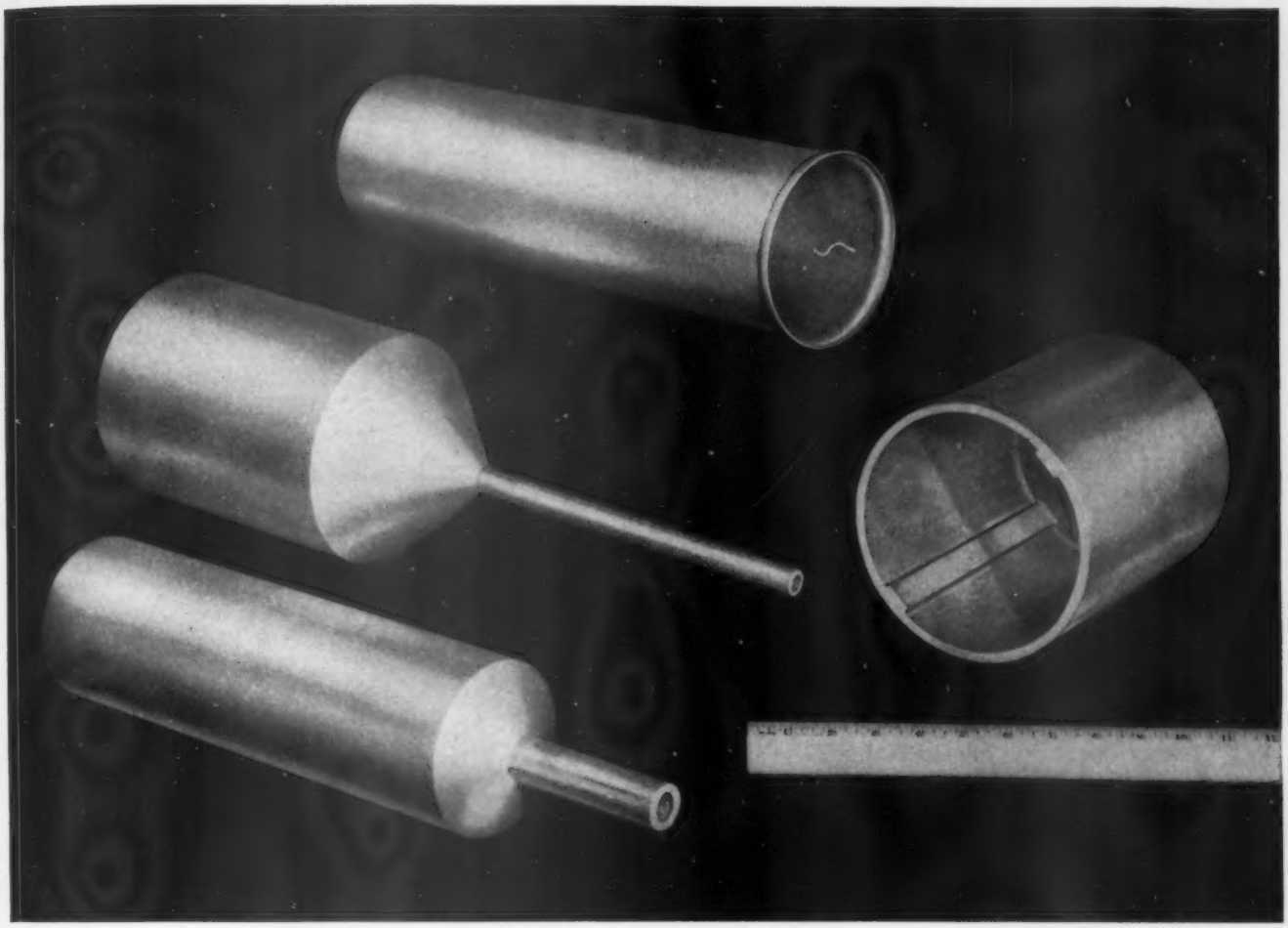
Jacobs Mfg. Co. 280
Jenkins Bros. .....4th Cover
Jiffy Mfg. Co. 380
Johns-Manville 485
Johnson Gas Appliance 267
Joliet Wrought Washer Co. 158
Jones & Laughlin Steel Corp. 85

K

Kearfott Co., Inc. 186
Keasbey & Mattison Co. 453
Keuffel & Esser Co. 10
Kex National Service 456
Keystone Steel & Wire Co. 128
Koppers Co., Inc. 115
Kuhn & Jacob Molding & Tool Co. 200
Kurz-Kasch, Inc. 189

L

Laminated Shim Co., Inc. 178
Lamson & Sessions Co. 143, 159
Legge Co., Inc., Walter G. 506
Leland Electric Co. 284
Linde Air Products Co., Div of Union Carbide & Carbon Corp. 253
Linear, Inc. 151
Lowell Wrench Co. 472
Lubriplate Div., Fiske Bros. Refining Co. 460
Lyon Metal Products, Inc. 473



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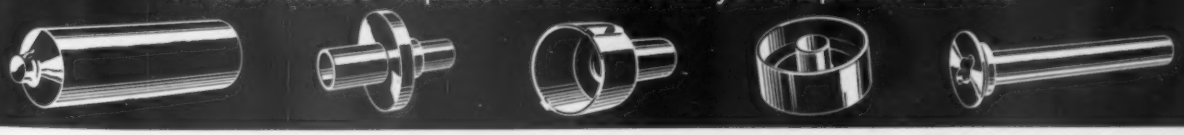
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For More Information Circle No. 873 on Inquiry Card—Page 17

M

Madesco Tackle Block Co. 496
Markem Machine Co. 378
Marsh Corp., Jas. P. 225
Master Electric Co. 323
Master Products Co. 212
Maurey Mfg. Corp. 444
Mayer Co., George J. 232
McGill Mfg. Co. 218
McLouth Steel Corp. 83
Midwest Piping Co., Inc. 167
Milford Rivet & Machine Co. 184, 205, 206, 207, 208
Millers Falls Co. 264
Minneapolis-Honeywell Regulator Co., Industrial Div. 227
Monarch Rubber Co. 333
Morse Twist Drill & Machine Co. 258, 259
Mueller Brass Co. 109

N

National Cash Register Co., The 397
National Lead Co. 475
National Lock Co. 159
National Screw & Mfg. Co. 159, 348
National-Standard Co. 125
National Tube Co. 127, 491
National Twist Drill & Tool Co. 32, 33
National Vulcanized Fibre Co. 203
Newark Wire Cloth Co. 29
New Departure Div. of General Motors 36
Niagara Blower Co. 458
Norton Co. 255, 256, 261
Nutting Truck & Caster Co. 348

O

Oakite Products, Inc. 466
Ohio Brass Co. 461
Ohio Div., Association Spring Corp. 217
Ohio Injector Co., The 447
Oiljak Mfg. Inc. 31
Okonite Co. 321
Olivetti Corp. of America 389

P

Page Fence Association 498
Page Steel & Wire Div. 34
Parker Appliance Co. 219
Parker-Kalon Div., General Amer. Trans. Corp. 26, 27, 159
Pawtucket Mfg. Co. 180
Peerless Steel Equipment Co. 395
Perkins Machine & Gear Co. 226
Permacel Tape Corp. 393
Phelps-Dodge Copper Products Corp. 468, 469
Phenoll Mfg. Co. 159
Philadelphia Gear Works 177
Pittsburgh Plate Glass Co., Brush Div. 282
Plume & Atwood Mfg. Co. 230
Plymouth Rubber Co., Inc. 224
Polyken Prod., Dept. of Kendall Co. 367
Polymer Corp. of Pa. 497
Powell Pressed Steel Co. 337
Powell Valves 415
Pratt & Whitney Div., Niles-Bement-Pond 268, 269
Precision Castings Co., Inc. 176
Precision Rubber Products Corp. 185
Pure Oil Co. 443
Pyrene-C-O-Two 481

Q

Quaker Rubber Corporation, Div., of H. K. Porter Company 419

R

Radio Corp. of America 317
Railway Express Agency, Inc. 352, 369
Randolph Laboratories, Inc. 464
Raymond Mfg. Co. 217
Reliance Electric & Engineering Co. 290, 291
Remington Rand Inc. 390, 391
Republic Steel Corp. 90, 91
Resistoflex Corp. 182
Reynolds Metals Co. 93, 94, 120, 121
Reynolds Wire Co. 125
Rheem Mfg. Co. 359, 375
Rhoads & Sons, J. E. 494
Riegel Paper Corp. 7
Roberts Rubber Co., Weldon 408
Rochester Products, Div. of General Motors 119
Rockford Screw Products Co. 159
Rockwood Sprinkler Co. 477
Roebling's Sons Co., John A. 335
Roll Formed Products Co. 155
Rollway Bearing Co. 169
Rust-Oleum Corp. 433
Ryerson & Son, Inc., Joseph T. 38

S

Sandvik Steel, Inc. 105
Schrader's Son, A. 277
Scott Paper Company 483, 488, 489
Scovill Mfg. Co. 159
Screw Research Association 159
Sealmaster Div., Stephens-Adamson Mfg. Co. 157
Shakeproof 159
Shell Chemical Co. 113
Simonds Abrasive Company 239
Simonds Saw & Steel Co. 262, 263
SKF Industries, Inc. 165
Socony-Vacuum Oil Co., Inc. 417
Southern Screw Co. 214
Southington Hdwe. Mfg. Co. 159
Square D Company 309
Standard Oil Company 429
Standard Pressed Steel Company.... 164, 191, 212, 457
Standard Tube Co. 168
Stanley Works, The
Pressed Metal Div. 222
Stanley Electric Tool Div. 452
Stanley Steel Strapping Div. 370
Star-Kimble 308
Steel Service Mfg. Co. 463
Sterling Bolt Co. 159
Strathmore Paper Co. 409
Sun Oil Co. 449, 450, 451
Superior Steel Corp. 103
Sylvania Electric Products, Inc. 302

T

Taylor Fibre Co. 104
Taylor Co., The Halsey W. 484
Technical Charts, Inc. 454
Tennessee Coal & Iron Div. 127, 148, 149, 491
Texas Co. .....2nd Cover
Texlite, Inc. 492
Thermoid Co. 421
Thompson & Son Co., The Henry G. 234
Titchener & Co., E. H. 204
Timken Roller Bearing Co. 141
Toledo Pipe Threading Mach. Co. 446
Torrington Co., The 193
Tube-Turns, Inc. 171, 172

U

Uddeholm Co. of America, Inc. 107
Udylite Corp. 272
Ulbrich Stainless 28
Union Twist Drill Co. 281
Unitcast Corp. 156
United Air Lines, Air Freight Div..... 379
United Chromium, Inc. 126
United Screw & Bolt Corp. 12, 152
United States Gasket Co. 216
United States Graphite Co., The 199
United States Rubber Co.,
Mech. Goods Div. 427, 441, 459
Wire & Cable Div. 303
United States Steel Corp. 127, 491, 503
United States Steel Export Co.....127, 491, 503
United States Steel Supply Co.....127, 503
Utica Drop Forge & Tool Corp. 446

V

Valley Electric Corp. 318
Veeder-Root, Inc. 223
Vickers Inc. 163
Virginia Gear & Machine Co. 177

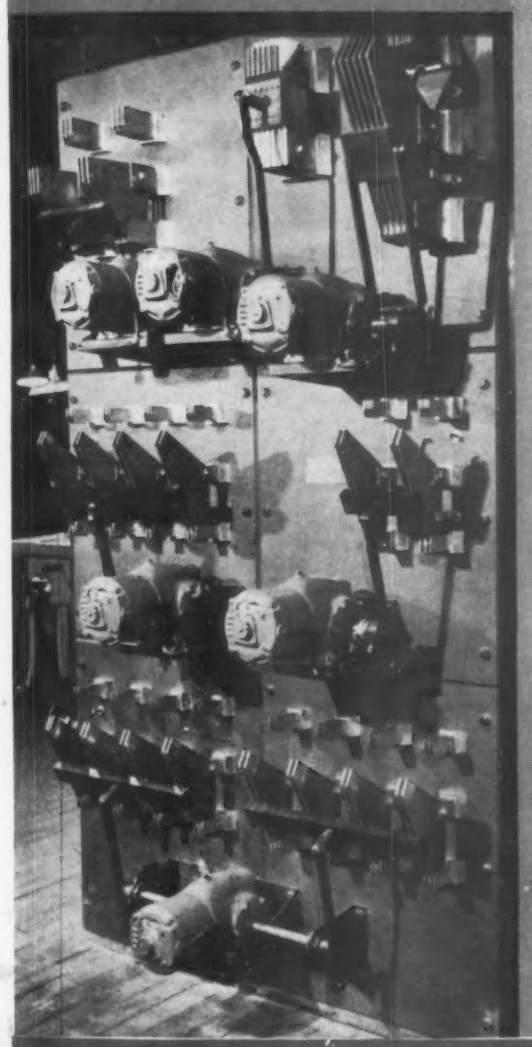
W

Wagner Electric Corp. 306
Wagner Litho Machinery Co. 125
Wales-Beech Corp. 159
Walker-Turner Div., Kearney & Trecker Corp. 274
Walworth Company 423
Ward Leonard Electric Co. 311
Washington Steel Corp. 112
Watson-Stillman Fittings Div. of H. K. Porter Company, Inc. 448
Waverly Petroleum Products Co. 479
Wells Mfg. Co. 273
Western Automatic Machine Screw Co. 221
Westinghouse Electric Corp., Lamp Div. 299
Whiting Corp. 349
Wickwire Spencer Steel Div. of the Colorado Fuel & Iron Corp. 341
Williams & Co., J. H. 476
Winter Brothers Co. 32, 33
Wirebound Box Mfrs. Assoc. 382
Woods Sons Co., T. B. 462
Worcester Pressed Steel Co. 166
Worcester Wire Works 125
World Bestos 174

Y

Yale & Towne Mfg. Co. 351
Youngstown Sheet & Tube Co. 75

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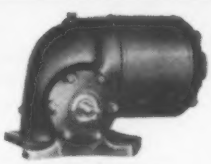
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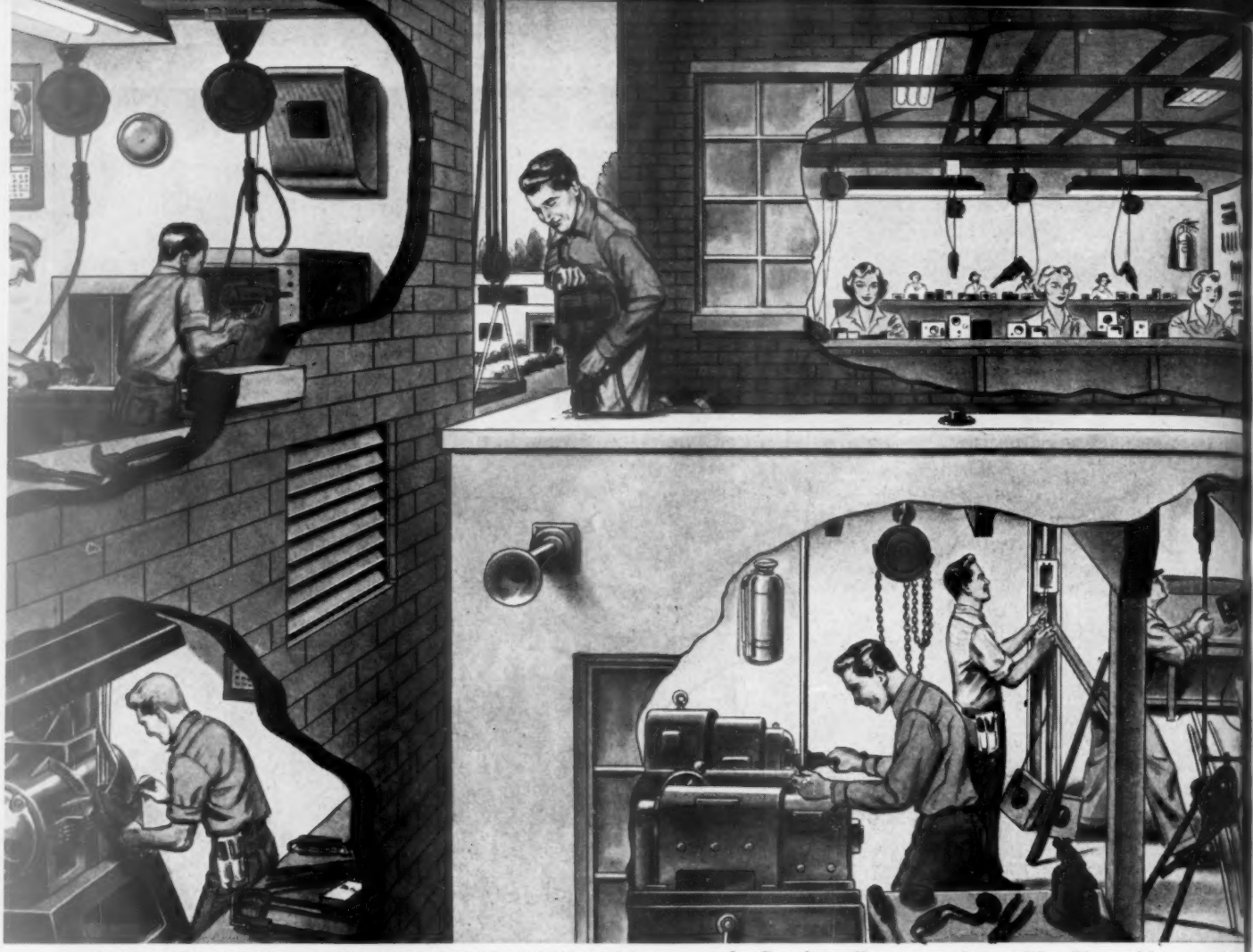
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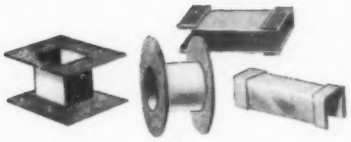
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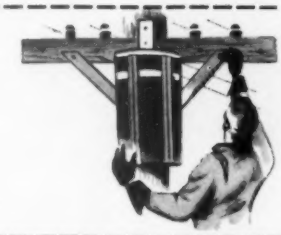
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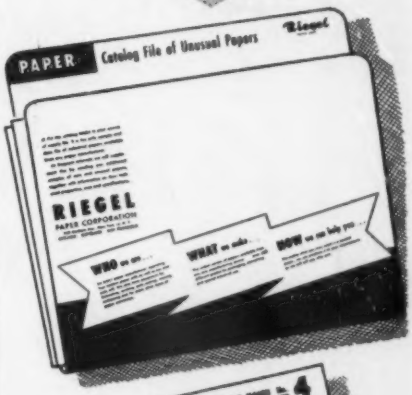
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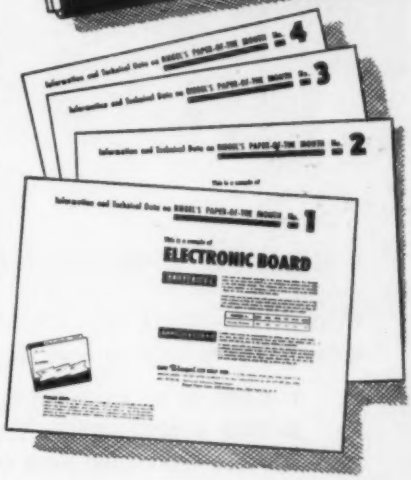
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For More Information Circle No. 510 on Inquiry Card—Page 17



New Kind Of Ice Flow

SLIPPERY materials-handling problem for an Idaho ice plant was hauling 300-pound cakes of ice through a residential section and across railroad tracks to "reefer" cars one-quarter mile away. Ordinary handling methods proved too slow, cost too much, melted away profits.

Slick solution came from the G.T.M.—Goodyear Technical Man. He recommended a belt conveyor two stories high, traveling at 181 feet per minute above all obstacles. Installed, it keeps a sure grip on the slippery cakes—is unaffected by the cold and water—keeps ice flowing steadily with minimum handling.

This G.T.M.-recommended belt is one more proof that rubber conveyors can haul virtually any bulk material anywhere—at lower cost. For expert help on your materials-handling problem contact the G.T.M. through your Goodyear Distributor or Goodyear, Industrial Products Division, Akron 16, Ohio.

YOUR GOODYEAR DISTRIBUTOR *can quickly supply you with Hose, Flat Belts, V-Belts, Packing or Rolls. Look for him in the yellow pages of your Telephone Directory under "Rubber Products" or "Rubber Goods."*

CONVEYOR BELTS by

GOODYEAR

THE GREATEST NAME IN RUBBER

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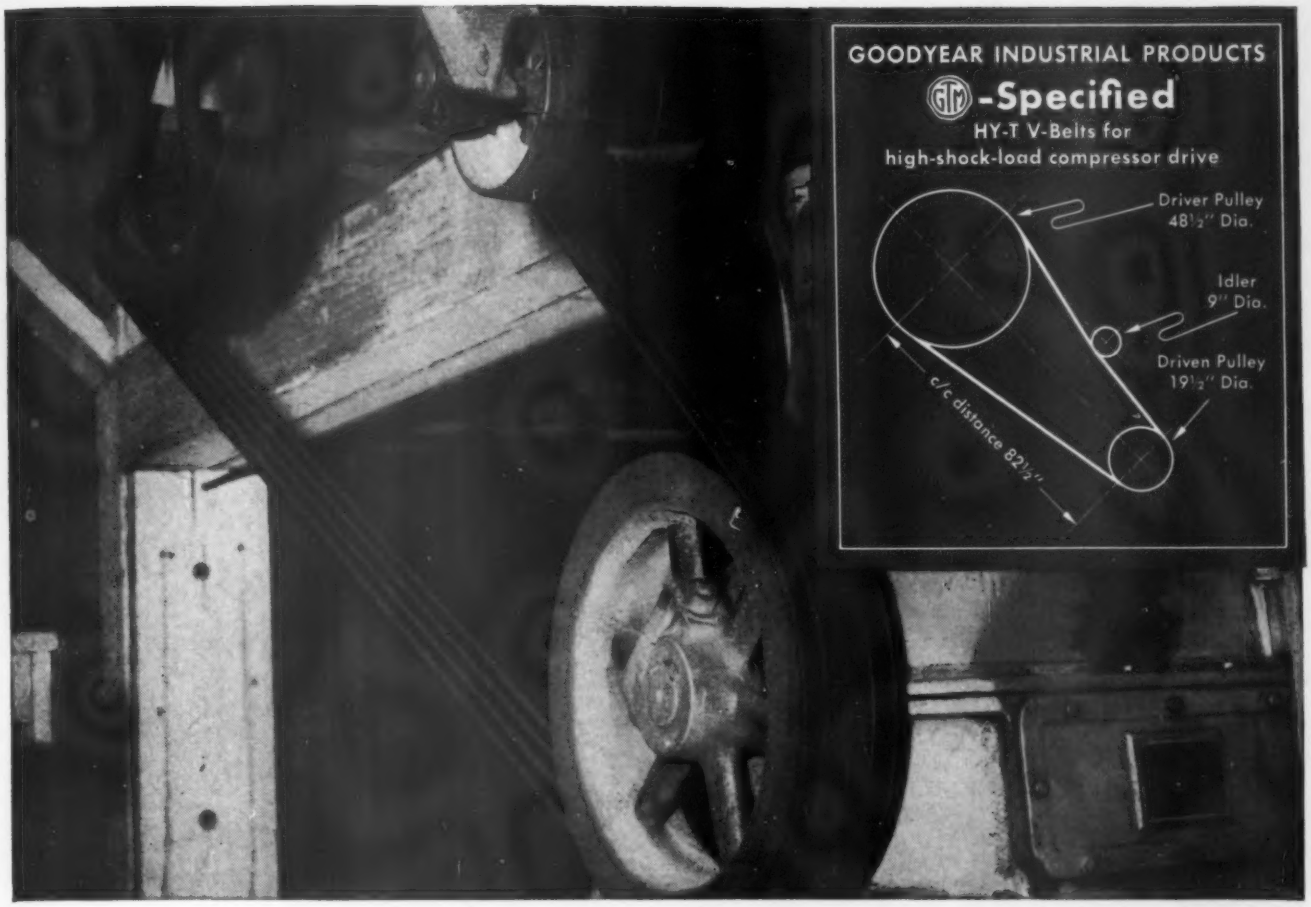
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For More Information Circle No. 512 on Inquiry Card—Page 17



Saved the cost of 3 sets of belts

and still going strong on tough compressor drive

BELT-BREAKING problem for a Southern lumber company was overloading on a compressor drive. Frequent and sudden shock-loads kept belt-life down to 6 months, meant costly shutdowns and expensive replacements.

Called in for consultation, the G.T.M.—Goodyear Technical Man—recommended HY-T V-Belts. Their multiple plies of chemically produced 3-T CORD are tempered by Time, Tension and Temperature to eliminate surplus stretch. They can carry 40% greater horsepower loads at speeds from 100 to 6,000 f.p.m.—have maximum resistance to oil, moisture, mildew and static generation.

Result: The HY-T V-Belts easily took the shock-loads in stride, are still running after 24 months—4 times the service life of the standard V-belts they replaced—saving the cost of 3 sets of belts to date.

If you have drive troubles call in the G.T.M.—the man who knows V-belts best. Contact him through your Goodyear Distributor or by writing to:

Goodyear, Lincoln, Nebraska or Akron 16, Ohio

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Hy-T—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

HY-T V-BELTS with 3-T CORD by

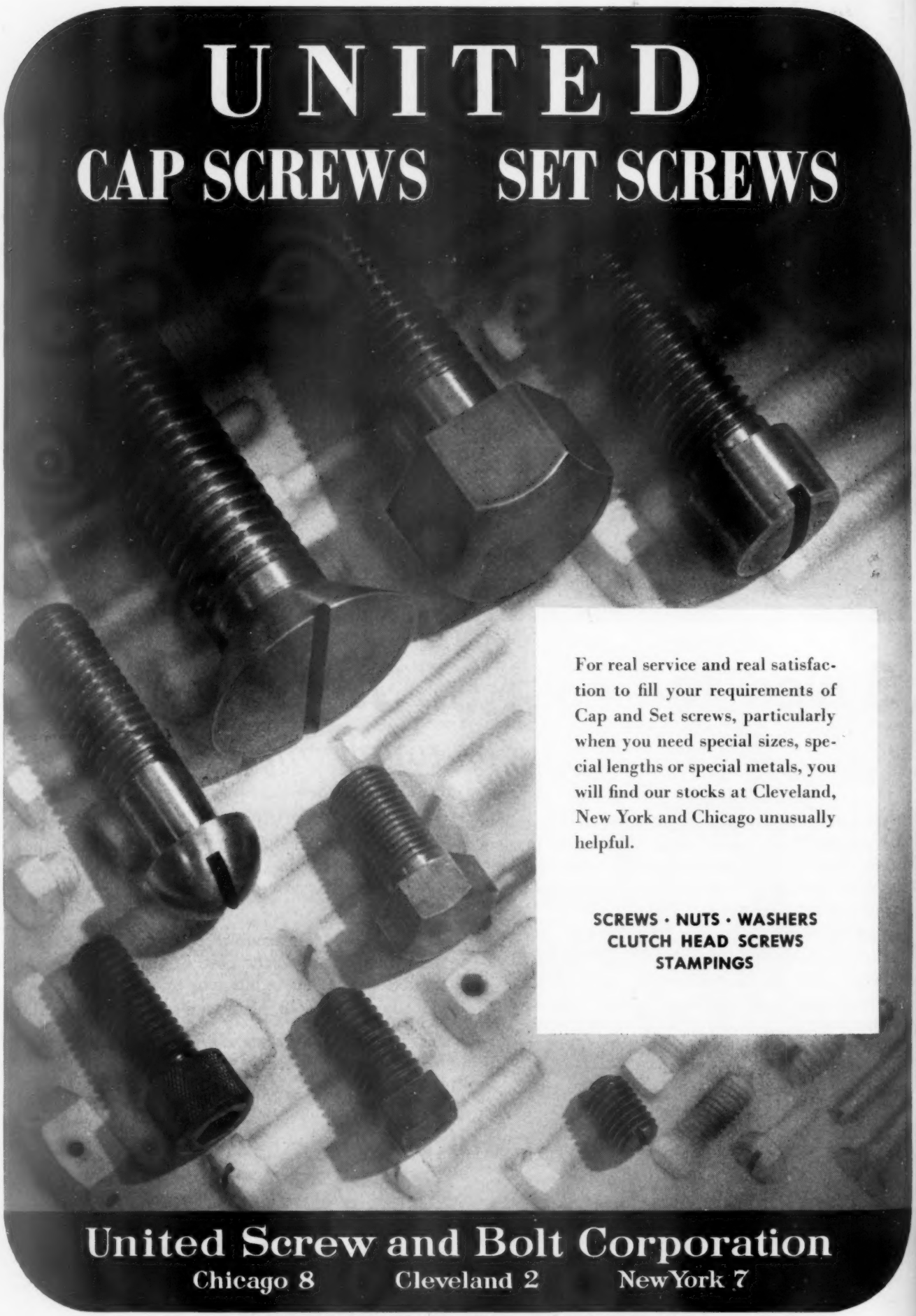
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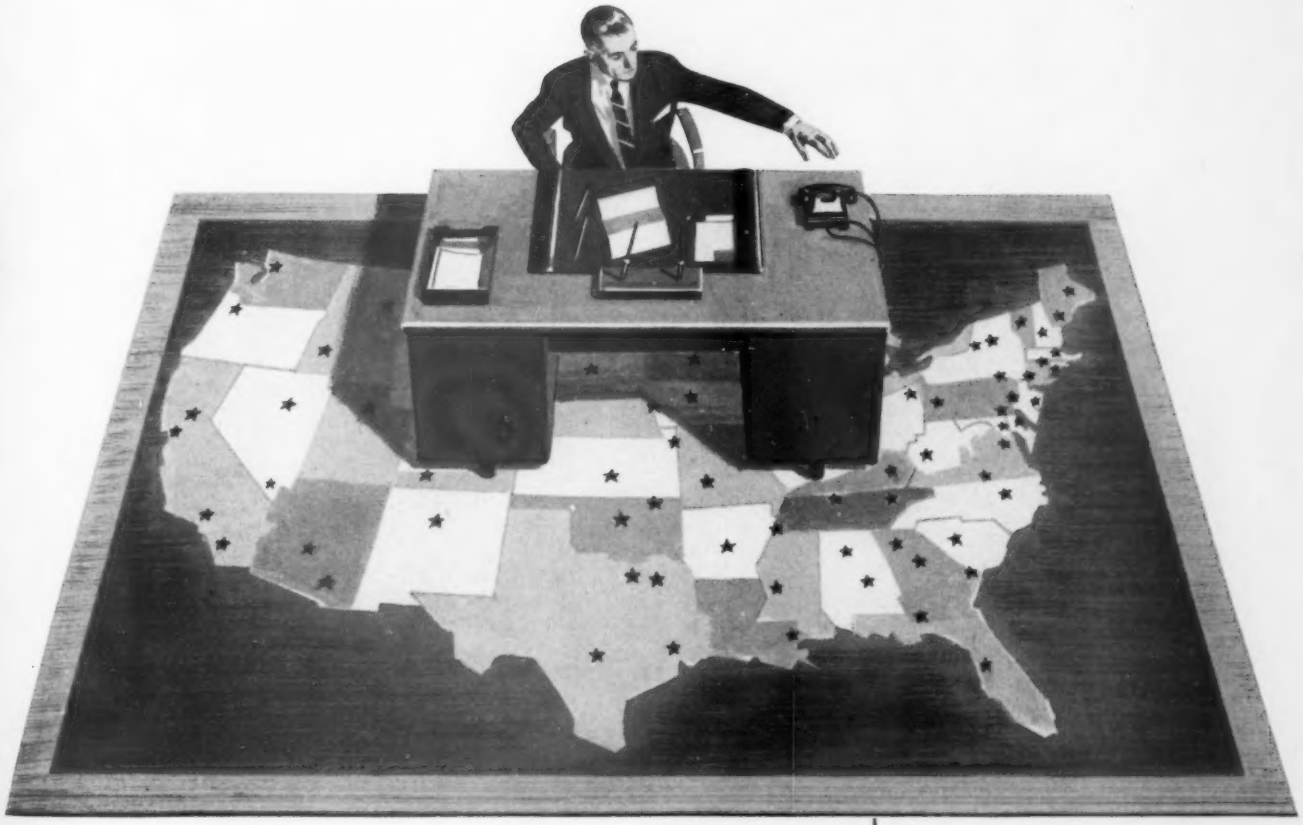
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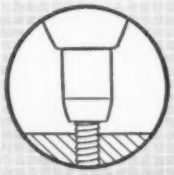
Save cost of tapping and tap equipment



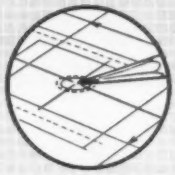
Save cost of "two-side" fastening — nut-running, riveting, etc.



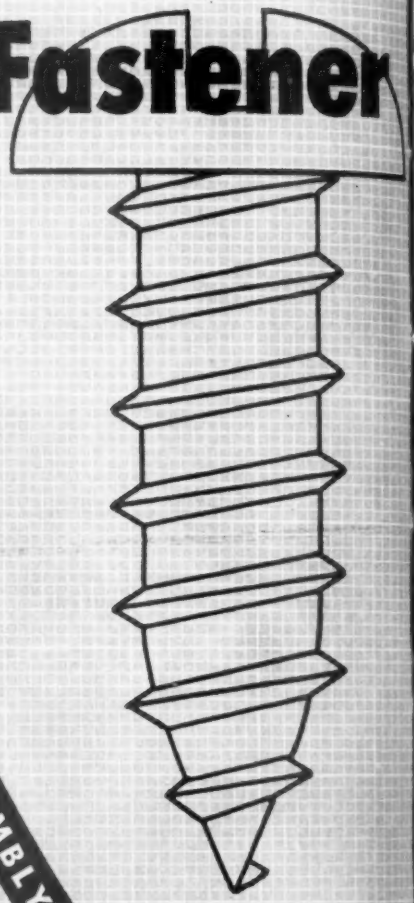
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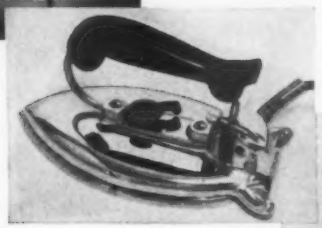
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and various types of Taps for Special Applications

GAGES

A complete line of Plug and Ring Gages, Threaded and Plain.

DIES

Adjustable Round Split Dies
Hexagon Rethreading Dies
Solid Square Bolt Dies
Solid Square Pipe Thread Dies



PHONE YOUR WINTER DISTRIBUTOR

WINTER BROTHERS COMPANY

Rochester, Michigan, U.S.A. Distributors in principal cities. Branches in New York • Detroit Cleveland • Chicago • Dallas • San Francisco Los Angeles

Division of National Twist Drill & Tool Co.



WITH *Dependable* CUTTING EDGES . . .

National milling cutters and hobs, with their dependable cutting edges, are available from Factory and Distributor's stocks. They give you cutting edges for excellent production and long wear.

Milling cutters also available with carbide tips.



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Distributors in principal cities. Branches in New York • Detroit • Cleveland • Chicago • Dallas • San Francisco • Los Angeles

Twist Drills • Reamers • Counterbores • Milling Cutters • End Mills • Hobs • Carbide Tipped and Special Tools





AMERICAN CHAIN
Weed Tire Chains, Welded and Weldless Chain, ACCO Registered Sling Chains
AMERICAN CHAIN DIVISION

ALLISON ABRASIVE WHEELS

Rubber and resinoid bonded for cutting all types of materials
THE ALLISON COMPANY

LAY-SET Preformed WIRE ROPE

Nonparell Non-Preformed Wire Rope
HAZARD WIRE ROPE DIVISION

ACCO products

These and Other ACCO Products Offer Better Values

ACCO products are designed and manufactured to be "intentionally better." They are used directly, or as component parts in a wide variety of products and machines. They help do many jobs better. 18 Divisions of the AMERICAN CHAIN & CABLE COMPANY manufacture more than 100 essential products.

PAGE CHAIN LINK FENCE

Welding Wire, Shaped Wire, Manufacturers' Wire
PAGE STEEL & WIRE DIVISION

TRU-LAY CABLE CONTROLS

Aircraft Cable, Push-Pull Controls, Tru-Stop Brakes for Trucks and Buses
AUTOMOTIVE AND AIRCRAFT DIVISION



HELICOID PRESSURE GAGES
HELICOID GAGE DIVISION

MANLEY AUTOMOTIVE EQUIPMENT

Presses, Jacks, Wrecking Cranes, etc.
MANLEY DIVISION

R-P & C VALVES

Bronze, Electric Iron & Cast Steel Valves and Steel Fittings
R-P & C VALVE DIVISION

TRU-LAY Preformed WIRE ROPE

ACCO Registered Wire Rope Slings, Crescent Non-Preformed Wire Rope
AMERICAN CABLE DIVISION

FORD HOISTS

Hand and Electric Hoists
FORD CHAIN BLOCK DIVISION



PENNSYLVANIA LAWN MOWERS
Power and Hand Mowers
PENNSYLVANIA LAWN MOWER DIVISION



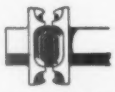
CAMPBELL MACHINES
Wet Abrasive Cutting Machines, Nibbling Machines
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"ROCKWELL" and TUKON HARDNESS TESTERS

WILSON MECHANICAL INSTRUMENT DIVISION

WRIGHT HOISTS and CRANES

Wright Hand Hoists, Speedway Electric Hoists, Cranes
WRIGHT HOIST DIVISION



CASTINGS
Reading Electric Steel ACCO Malleable
ACCO CASTING DIVISION



MARYLAND BOLTS and NUTS
THE MARYLAND BOLT and NUT COMPANY



OWEN SPRINGS
Springs and Units for Mattresses and Furniture
OWEN SILENT SPRING DIVISION

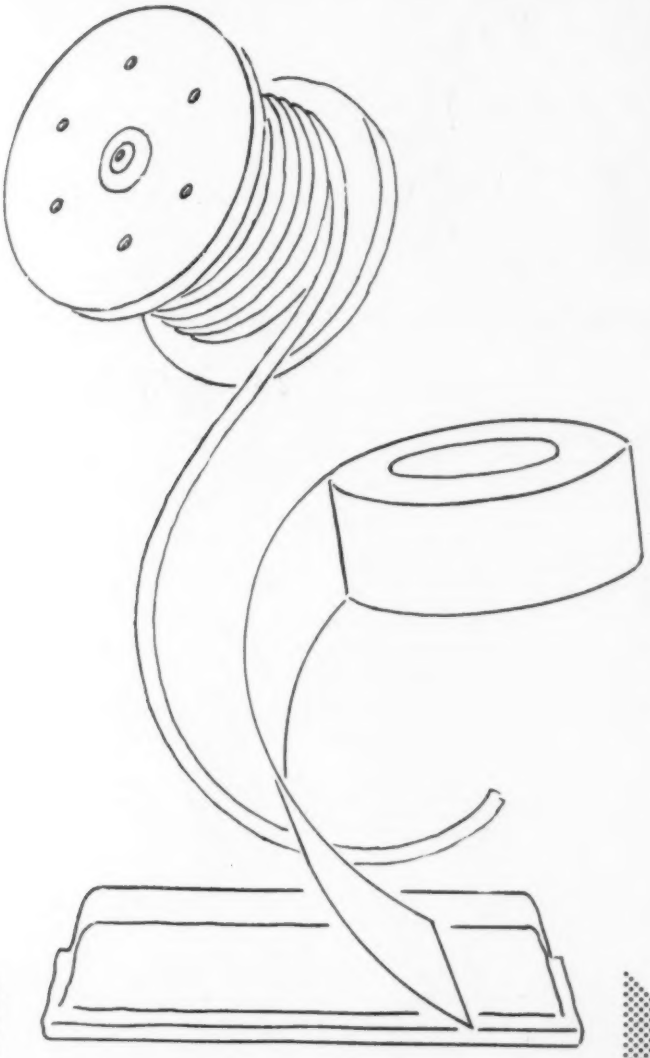
BRISTOL INSTRUMENTS

Automatic Controls, Recorders, Telemeters, and Aircraft Controls
BRISTOL'S® SOCKET SCREWS
THE BRISTOL COMPANY

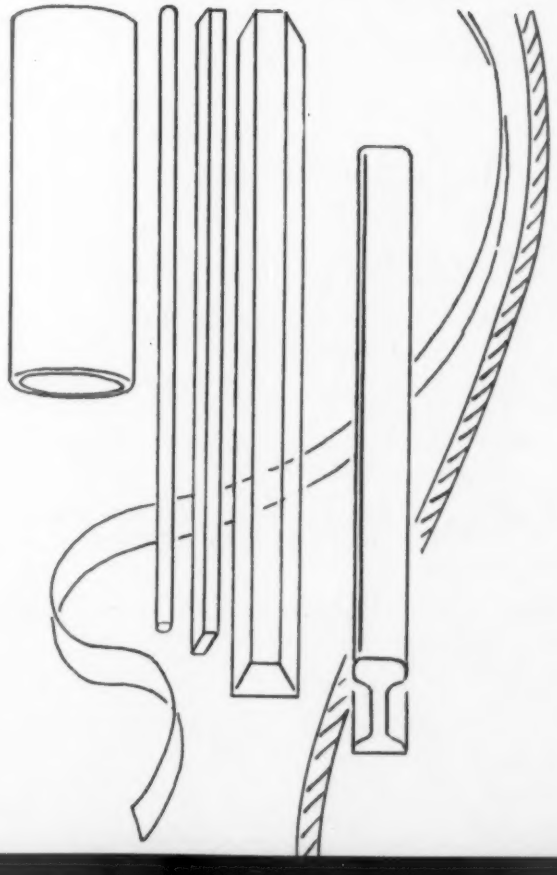
American Chain & Cable Company, Inc. Bridgeport 2, Conn.
Serving Industry, Transportation, Agriculture and the Home

ACCO
TRADE MARK

For More Information Circle No. 527 on Inquiry Card—Page 17



MATERIALS





Check Your MATERIALS

VQ*

	YES	NO
1. Do we encourage suggestions from suppliers on use of lower cost materials?		
2. Are we always endeavoring to buy a minimum number of sizes and specifications of a given material so as to keep both inventories and unit costs as low as possible?		
3. Are we alert to the opportunities for cost reduction through use of substitute materials?		
4. Do we keep well informed on trends in prices and availability of materials?		
5. Have we considered buying in most economical quantities and having specialist suppliers carry additional inventory at nominal cost?		
6. Are we paying any "extras" when buying metals that are unnecessary for the application?		
7. Will pre-polished, pre-plated, or pre-painted sheets reduce our costs?		
8. Are we buying coils instead of sheets wherever practical to cut unit costs and reduce handling costs?		
9. Do we keep in close touch with sales so that our inventories of materials will be neither excessive nor short?		
10. Are we buying the lowest cost material that will do the job—e.g. are we using cold rolled steel when hot rolled is adequate?		
11. Do we know where to go and what to do should certain materials again become tight?		
12. Are we buying virgin material for a job that can use offal?		
13. Do we consider substituting one material for another when relative market prices change?		
14. Are we alert to opportunities to buy material which may be scrap to another company but which we can use advantageously?		
15. Are we well informed on the growing number of different applications of some of the newer materials?		

*Value Quotient

BUILDS EXTRA SELLING POWER INTO YOUR PRODUCTS



THEY *buy* A.W. STRIP *Steel, too!*

(Hot and cold rolled)

'They' are the people who buy products made with ALAN WOOD strip steel. 'They' are housewives, children, manufacturers—you and I.

Perhaps they can't always *see* the superior qualities derived through precise, metallurgical control and "custom-production" of strip steel—but they *do* know these qualities must be present—because of the product's strength, dependability and reputation.

If you require strip steel, your products deserve the "custom-produced" qualities of superior strip . . . for minimum waste . . . less wear and tear on tools . . . easier, faster production. They deserve ALAN WOOD strip steel.

For products requiring hot or cold rolled strip or sheets, call upon the services of a versatile, integrated steel specialist with modern, up-to-date, continuous mills—where steel is produced to your specific requirements—ALAN WOOD STEEL COMPANY.

IRON PRODUCTS
"Swede" *pig iron*
STEEL PRODUCTS
Plates (sheared)
Hot rolled sheets
Hot rolled strip
Cold rolled sheets
Cold rolled strip
ROLLED STEEL FLOOR PLATE
A.W. ALGRIP *abrasive*
A.W. SUPER-DIAMOND *pattern*
A.W. CUT NAILS
MINE PRODUCTS
COKE
COAL CHEMICALS

SM-35

ALAN WOOD STEEL COMPANY

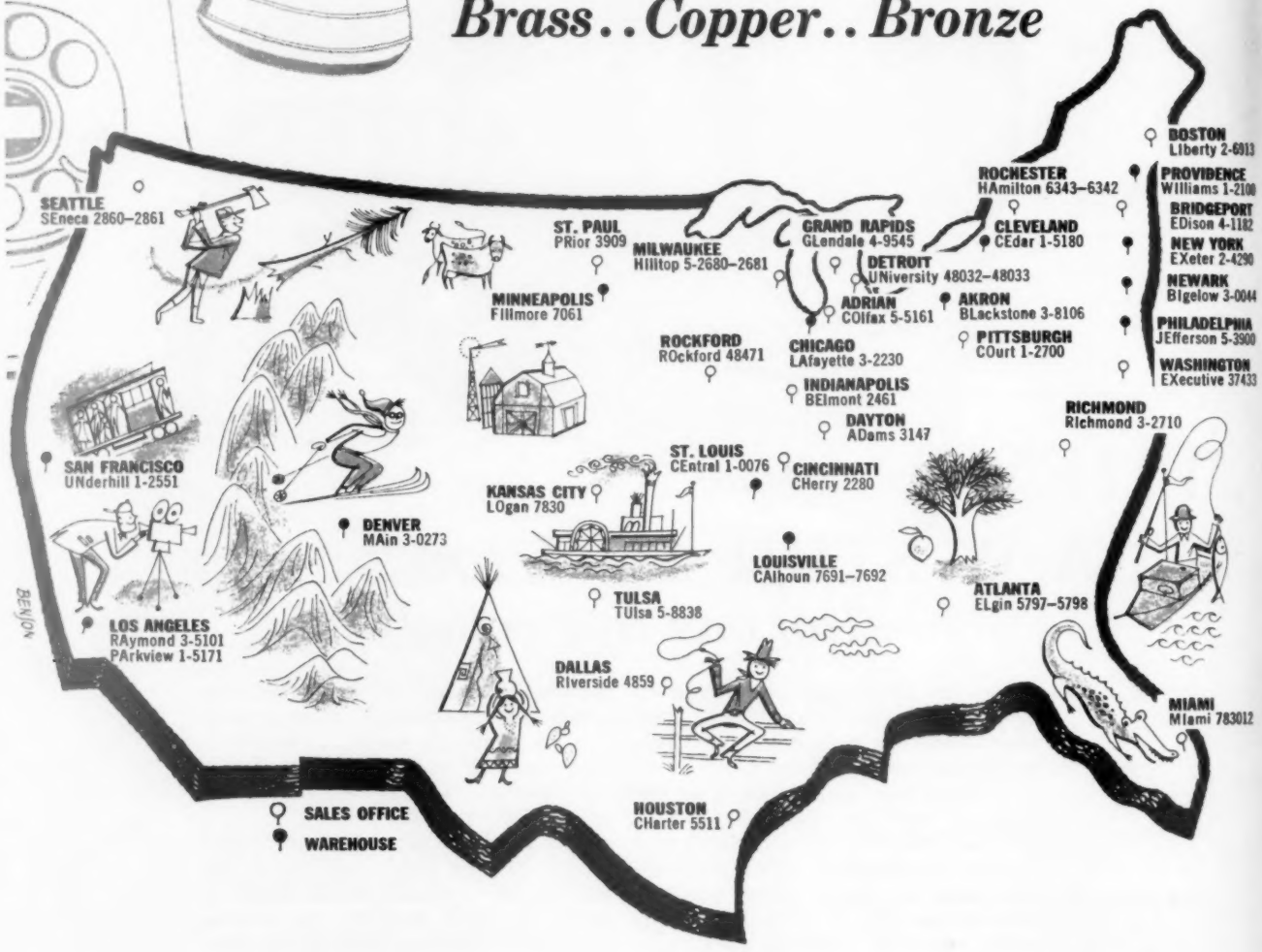
steelmasters for 129 years • CONSHOHOCKEN, PENNA.

DISTRICT OFFICES AND REPRESENTATIVES: Philadelphia • New York • Houston
Los Angeles • Atlanta • Boston • Buffalo • Cincinnati • Cleveland • Detroit • Pittsburgh
Richmond • St. Paul • San Francisco • Seattle • Montreal and Toronto—
A. C. Leslie & Co., Limited

For More Information Circle No. 532 on Inquiry Card—Page 17

Wherever you are-
Save time, Save money...

Use Bridgeport's nationwide service for Brass..Copper..Bronze



Whatever your requirement in brass, copper and bronze—wherever you need dependable delivery—Bridgeport's nationwide network of warehouses and sales offices assures you prompt, efficient service.

A phone call will start shipment of your order for sheet, strip, rod, wire or tubing. And Bridgeport Technical Service is always ready to assist you in product improvement as well as new product development.

Call *now*—and ask for a free copy of Bridgeport's 96-page Warehouse Stock List.

BRIDGEPORT BRASS

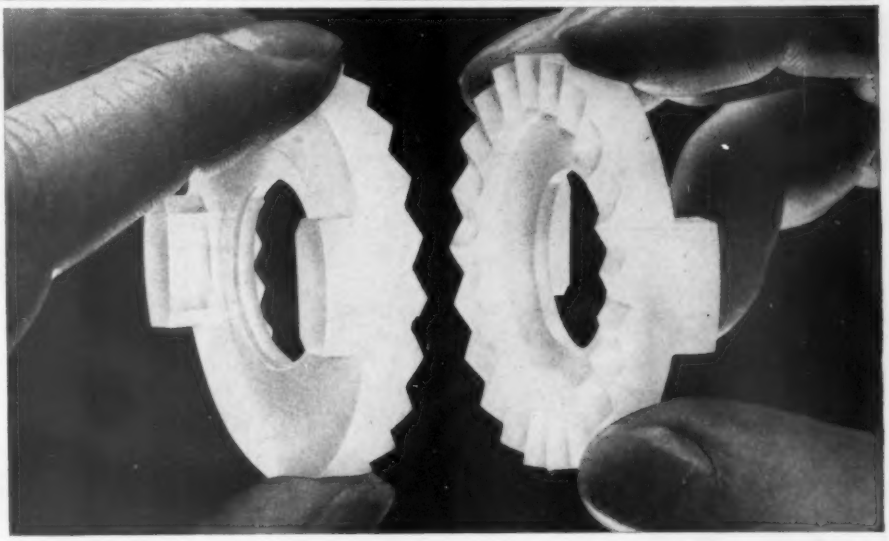
Offices in Principal Cities • Conveniently Located Warehouses

Bridgeport Brass Company, Bridgeport 2, Connecticut • In Canada: Noranda Copper and Brass Limited, Montreal

For More Information Circle No. 533 on Inquiry Card—Page 17

A Message from Du Pont on Advanced Product Design





WITH AN INJECTION-MOLDING MACHINE, parts of "Zytel" nylon resin like the clutch facing can be mass-produced in multi-cavity dies—a fast, efficient method of fabricating, which generally requires no machining or finishing. Facings shown at right are molded by The Danielson Manufacturing Company of Danielson, Connecticut.

Clutch facings of ZYTEL® nylon last 5 times longer... save $150 per year per clutch

32¢ facings of "Zytel" replace $8.75 metal facings

This clutch revolves at 1750 rpm, transmitting 75 ounce-inches of torque. It is engaged and disengaged up to 40 cycles a minute, 24 hours a day. Minnesota Mining & Manufacturing Company, St. Paul, Minnesota, formerly used heat-treated metal facings for this heavy-duty job, but had to replace them an average of 17 times a year. After a change to facings molded of tough, wear-resistant "Zytel" nylon resin, replacements were required only *three times a year!*

The metal clutch components cost $8.75 apiece. Those of "Zytel" are 32¢ each. The savings realized on the first 91 facings of "Zytel" covered the costs of the die required to mold these precision parts. Minnesota Mining & Manufacturing Company estimates an annual saving of $150.00 per clutch installation, to which can be added savings which accrue from only three machine shutdowns a year instead of seventeen.

Du Pont "Zytel" nylon is resilient and lightweight. Moving parts often require little or no lubrication. This engineering material has good dielectric properties... also resists corrosion and deformation from moisture. "Zytel" can operate continuously at temperatures as high as 250°F. As for its production economy—the case history above clearly demonstrates how injection molding can cut costs.

Have you investigated the unique properties of "Zytel" nylon and other members of the Du Pont family of engineering materials—"Teflon" tetrafluoroethylene resin, "Alathon" polyethylene resin and "Lucite" acrylic resin? The applications shown here are typical product improvements—possible when design and service requirements are evaluated in terms of the properties of these versatile engineering materials. For further information on their properties and uses, clip the coupon below or write to E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Dept., Room 376, Du Pont Building, Wilmington 98, Delaware.

ZYTEL® nylon resin
ALATHON® polyethylene resin
TEFLON® tetrafluoro-ethylene resin
LUCITE® acrylic resin

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING ... THROUGH CHEMISTRY

E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Department
Room 376, Du Pont Building, Wilmington 98, Delaware
In Canada: Du Pont Company of Canada Limited,
P.O. Box 660, Montreal, Quebec

Please send me more information on the Du Pont engineering materials checked: "Zytel" nylon resin ☐; "Alathon" polyethylene resin ☐; "Lucite" acrylic resin ☐; "Teflon" tetrafluoroethylene resin ☐. I am interested in evaluating these materials for _____

Name _____

Position _____

Type of Business _____

Street Address _____

City _____ *State* _____

For More Information Circle No. 535 on Inquiry Card—Page 17



You call ONE MAN . . . not a "bored meeting" when you order Bristol Brass

YOU don't have to "go down the line" . . . and back over it again and again . . . when you do business with Bristol. You deal with one man all the way . . . one man who has both the mill experience and sales know-how to speed your order straight through. You won't get the "I don't know but I'll ask someone who does and have him call you back" treatment. Whoever talks to you at Bristol has the full authority and responsibility to get your Brass to you quickest way. Nor does he have to be a vice president!

And once your specifications are set in the mill, your interests are protected by the personal interest which Bristol mill men will take in your orders. You're not an order number . . . you're a recognized individual . . . and we're not too big to forget it.

So all you have to do when you call Bristol (Connecticut) Ludlow 3-9246 is simply to say: "I want to place an order". And the next voice you hear will be that of the man who'll take it from there to your receiving department.

The BRISTOL BRASS CORPORATION has been making Brass strip, rod and wire here in Bristol, Connecticut since 1850, and has offices and warehouses in Albany, Boston, Buffalo, Chicago, Cleveland, Detroit, Milwaukee, New York, Philadelphia, Providence, Rochester, Syracuse. The Bristol Brass Corporation of California, 1217 East 6th St., Los Angeles 21. The Bristol Brass Corporation of Ohio, 1607 Broadway, Dayton.

And now . . . BRASS FORGINGS, too . . .
The Bristol Brass Corporation announces the acquisition of Accurate Brass Company, 73rd Ave. & 88th St., Brooklyn 27, N.Y.
"How do you know it can't be forged?"

"Bristol-Fashion" means **Brass at its Best**

For More Information Circle No. 536 on Inquiry Card—Page 17

For More Information Circle No. 537 on Inquiry Card—Page 17→

STAINLESS STEEL FOR BUILDINGS



McLouth STAINLESS Steel

High quality stainless sheet and strip steel . . . for the product you make today and the product you plan for tomorrow.

McLouth Steel Corporation
DETROIT, MICHIGAN
Manufacturers of Stainless and Carbon Steels



Plastic Injection Mold Die Costs Lowered 25%

According to Rezolin, Inc., Los Angeles, Calif., Bakelite epoxy resin compounds save five days and reduce costs 25% in the production of steel dies for plastic injection molding. A model of the concave die face is molded from the plastic tooling compounds and reproduced in steel by a Keller duplicator. Hardness of the plastic compound enables the plastic model to withstand wear from the duplicator. The die face model is simply cast from a positive model of the finished product.

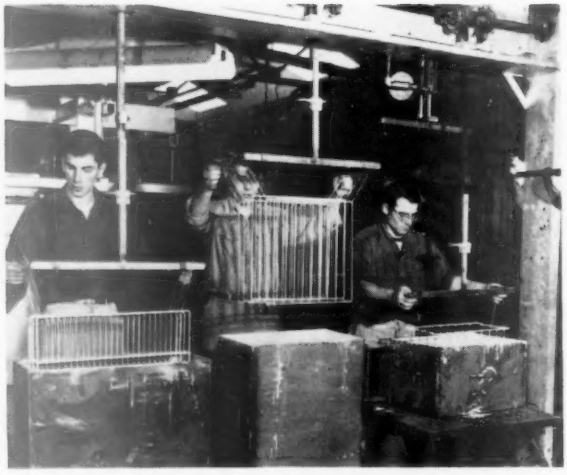
CIRCLE NO. 56 ON INQUIRY CARD—PAGE 17



Resins Permit Replacement Of 110 Parts With 12

Compressors made by Westmore Hodges & Associates, Redwood City, Calif., have a complete new design which puts the unit mechanism inside the electrical driving members. This reduces over-all size by three-quarters. Some 60% of the dead weight is eliminated. Also, only 12 parts are needed instead of 110. These economies result from use of Epon resins, produced by Shell Chemical Corp. to impregnate the stator windings against moisture or chemical attack. This makes it possible for stator to act as outer casing for the whole unit.

CIRCLE NO. 57 ON INQUIRY CARD—PAGE 17



Cold Dipping Speeds Production, Saves Material

Peerless Wire Goods, Lafayette, Indiana, supplies freezer baskets and shelves to two of the country's leading appliance makers. These have to be made abrasion-proof and corrosion-proof by cold dipping in a plastisol. By using Compound 4129, made by United Chromium, Inc., New York, N.Y., Peerless obtains dipping speeds of 17 to 18 inches per minute on automatic conveyor equipment compared with speeds of only 6 to 7 inches per minute on other presently available cold dip plastisols. And 50% less material is deposited.

CIRCLE NO. 58 ON INQUIRY CARD—PAGE 17



you pick 'em . . . *J&L Steel Warehouse Service*

meets your need for both stock and services.

Your need for less inventory cost, lower handling costs, and less factory space required for storing steel, can be matched by the facilities of your local J&L Steel Warehouse. You can have as much—or as little steel as you need on a moment's notice. And, J&L's Fabrication Service will save you still more time and money where shearing, forming, torch cutting, or blanking are required.

ORDER FROM THIS COMPLETE LINE OF STEELS

SPECIALS: Jalloy (abrasion and impact resistance) • Jalten (high strength—good formability—lighter weight) • Junior Beams • Junior Channels • Jaltread Floor Plate • Tool Steels • Stainless Steels • **STANDARD PRODUCTS:** Hot Rolled and Cold Finished Bars and Shapes • Structural Shapes • Carbon and Hi-Tensile Plates • Hot and Cold Rolled Strip and Sheets • Wire Products • "Precisionbilt" Wire Rope.

OBTAIN SERVICE THAT SOLVES YOUR PROBLEMS

TECHNICAL SERVICE: Experienced Jones & Laughlin Metallurgists to help you with analyses and recommendations. **FABRICATION SERVICE:** Shearing, forming, torch cutting, blanking, to your specifications.

J&L STEEL

Jones & Laughlin

STEEL CORPORATION — *Pittsburgh*

WAREHOUSE DIVISION

Call your nearest J&L STEEL WAREHOUSE

For More Information Circle No. 538 on Inquiry Card—Page 17



Pipe? Tubing? *Yes, sir!*

Just name it! Your nearby Inco Distributor has plenty of tubing right in stock. Even if you need a special size, he knows where to get it for you in the shortest possible time.

Call on his large stock of corrosion-resisting Inco Nickel Alloys like Monel and Inconel . . . stainless steels . . . aluminum . . . copper . . . brass . . . bronze. And many more. Even plastics.

In all, you have more than 27 different types of corrosion-resisting metals and alloys to choose from. A complete range of the most-used sizes, too. And if you need something *special* — like tubing with .002″ wall, or pipe big enough to crawl through — your Inco Distributor can get those for you.

Remember, any time you need something in tubing, your Inco Distributor is as near to you as your own telephone. Call him for all nationally known quality brands of pipe and tubing!

If you don't know who your local Inco Distributor is, look him up under "Nickel" in the Classified Section of your phone book. Or in Thomas' Register or MacRae's Blue Book. Do it now, for he's a good man to know when you need pipe and tubing — or corrosion-resisting metals in *any* shape or form.

* * *

Write Today . . . Your local Inco Distributor stocks over 20,000 separate items, including wire rope and link chain . . . bushings . . . bearings . . . balls . . . buckets . . . scoops . . . funnels . . . shovels. Write us for a copy of his complete catalog!

Available from Your Inco Distributor

All Inco Nickel Alloys
Monel®
Nickel
Inconel®

Primary nickel for alloying purposes

Copper and Copper Alloys
Brass
Bronze

Copper-Nickel

Aluminum

Stainless steel

Clad metals

Foundry alloys

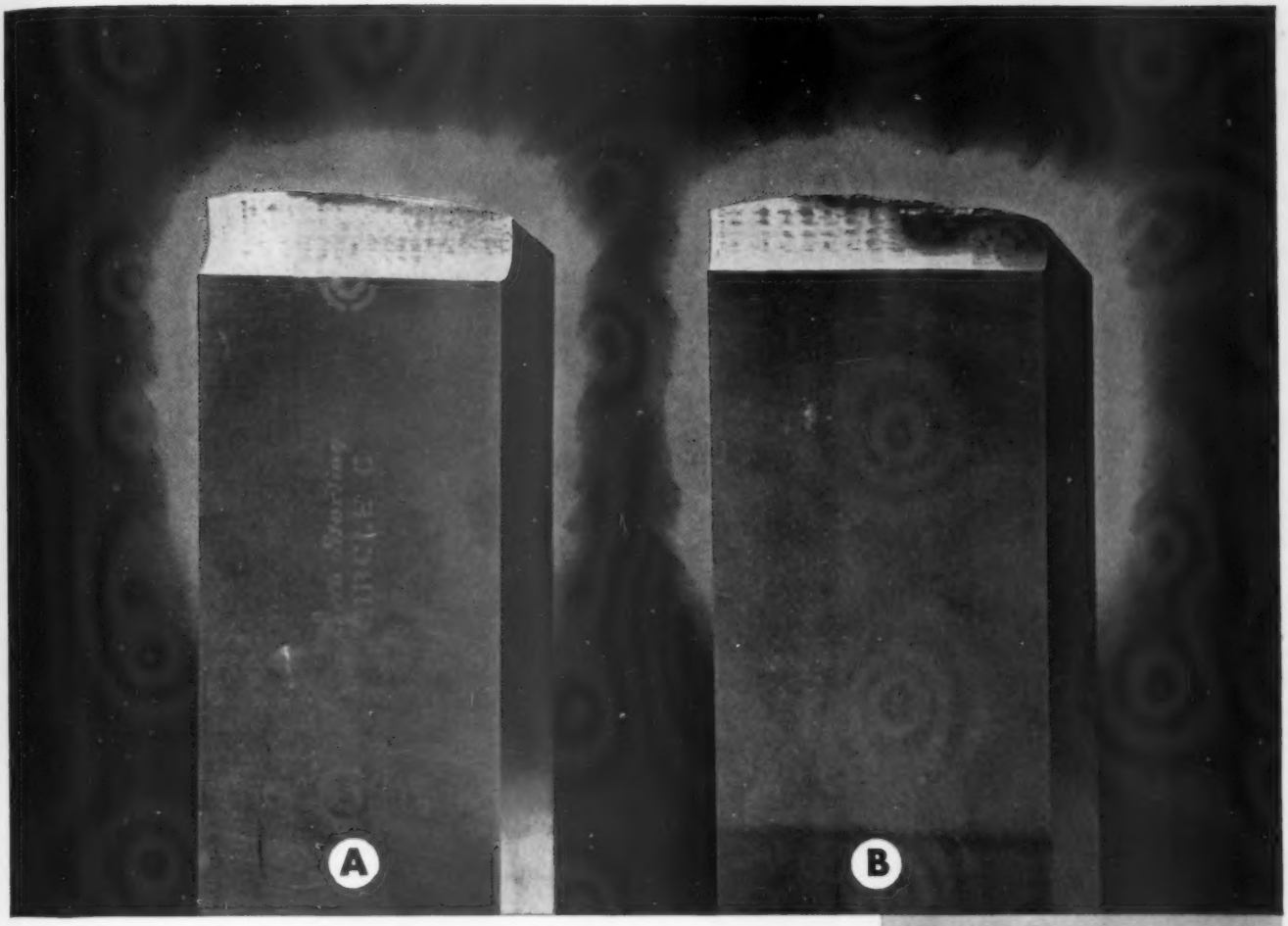
Plastics

Sheet • Rod • Wire • Shapes • Pipe
Tube • Valves • Fittings • Fastenings
Wire Mesh • Castings • Welding and
Brazing Materials.

The International Nickel Company, Inc.
67 Wall Street New York 5, N. Y.

INCO TRADE MARK **Nickel Alloys**

For More Information Circle No. 539 on Inquiry Card—Page 17



which tool cut leaded steel?

• Right! The answer could only be Tool A which was used on leaded Aristoloy—4140. Tool B was used on non-leaded Aristoloy 4140 under the same conditions.

A comparison of the cutting edges of both tools demonstrates how the freer machining characteristics of leaded steels increase tool life and thereby reduce machining costs. The lead addition acts as a lubricant reducing friction between chip and tool. Tools therefore operate at lower temperature, contribute to better chip formation and eliminate damaging tool edge build-up.

Why not find out what advantages leaded steel can offer you? Call your nearest Copperweld office today for complete information or write us direct.

SEND FOR FREE CATALOG

If you would like specific information about application of lead steel to your product get in touch with your nearest Copperweld office or write us today.



ARISTOLOY STEELS

COPPERWELD STEEL COMPANY

STEEL DIVISION • WARREN, OHIO

DISTRICT OFFICES

P. O. Box 1633
Tulsa, Oklahoma
315 Hollenbeck Street
Rochester, New York
117 Liberty Street
New York, New York
711 Prudential Building
Houston 25, Texas
80 King Street West
Toronto, Ontario, Canada
Monadnock Building
San Francisco 5, Calif.
325 W. 17th Street
Los Angeles 15, Calif
First National Bank Bldg.
Jamestown, New York
1578 Union Commerce Bldg.
Cleveland, Ohio
5675 Elston Avenue
Chicago 30, Illinois
1807 Elmwood Avenue
Buffalo, New York
7251 General Motors Bldg.
Detroit, Michigan
143 Washington Avenue
Albany, New York
611 Beury Building
Philadelphia 40, Penna.
625 James Street
Syracuse, New York
3102 Smith Tower
Seattle, Washington

For export—Copperweld Steel International Company, 117 Liberty St., New York

For More Information Circle No. 540 on Inquiry Card—Page 17



Ball Stud Machined 40% Faster With Leaded Steel

A well known job shop used to produce 108 ball studs per hour on an automatic screw machine. The studs were made of A-8640 steel. By switching to Aristoloy 8640 leaded steel, output was increased to 150 pieces per hour—and costs were slashed accordingly. In addition, the leaded material gave a superior finish.

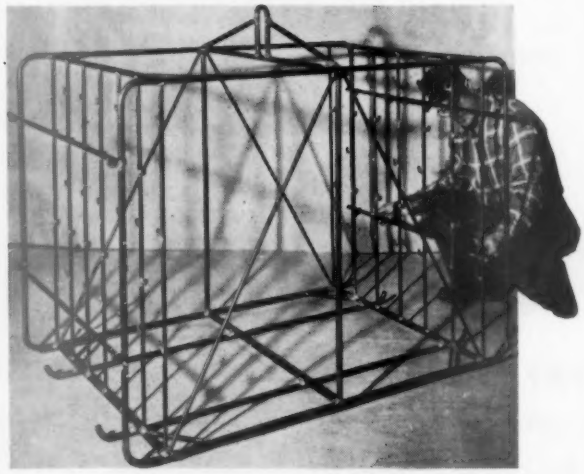
CIRCLE NO. 59 ON INQUIRY CARD—PAGE 17



Alloy Bushing Protects Shaft, Increases Part Life 20 Times

An agitator shaft used in a calcium-lead furnace of National Lead Company was being eaten away rapidly and had to be replaced frequently. An area between two propellers on the shaft was severely attacked by corrosion and erosion by immersion in the molten lead. A bushing made of Haynes Stellite alloy No. 3 was slipped over the shaft, and the two propellers and the bushing were welded in place with Haynes Stellite alloy No. 1 rod. Thus protected, the shaft has already remained in operation at least 20 times longer than previously.

CIRCLE NO. 60 ON INQUIRY CARD—PAGE 17



Strong, Light Monel Crate Ups Pickling Payload 50%

Fabricated work carriers used in batch pickling operations carry greater payloads when made from a corrosion-resisting material with a high strength-to-weight ratio. A well known manufacturer applied this principle and increased pickling payload 50% when a Monel pickling crate was put into service. The crate weighs but 350 lbs. yet safely handles a 1000 lb. load of bulky steel reflectors.

CIRCLE NO. 61 ON INQUIRY CARD—PAGE 17

NEED COPPER?

Use this handy check list of the key classifications of Hussey Copper and brass products to recall the wide variety that is immediately available from any of seven complete Hussey warehouse stocks. Mill runs of any product and mill services such as shearing, slitting or special heat treatment are also available.

ORDER FROM YOUR NEAREST
HUSSEY COPPER
WAREHOUSE

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Telephone: GRant 1-3650

5318 St. Clair Avenue • Cleveland 3, Ohio
Telephone: UTah 1-3838

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Telephone: CAnal 6-6326

3900 N. Elston Avenue • Chicago 18, Illinois
Telephone: COrnelia 7-2234

1620 Delmar Boulevard • St. Louis 3, Missouri
Telephone: CEntral 1-9192

1632 Fairmount Avenue • Philadelphia 30, Pa.
Telephone: STevenson 2-4311

424 Commercial Square • Cincinnati 2, Ohio
Telephone: MAin 2832

COPPER HUSSEY BRASS

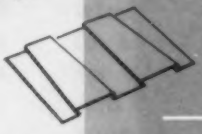
C. G. HUSSEY & COMPANY
(Division of Copper Range Co.)
ROLLING MILLS AND GENERAL OFFICES
PITTSBURGH 19, PA.

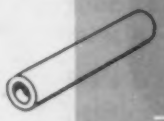
CHECK LIST


COPPER IN ROLLS

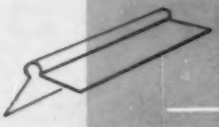

FABRICATED COPPER ROOFING DRAINAGE PRODUCTS


COPPER AND BRASS BARS

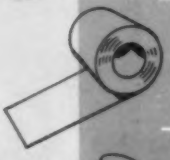

HUSSEY MAJESTIC 3-WAY THRU-WALL COPPER FLASHING


COPPER AND BRASS PIPE

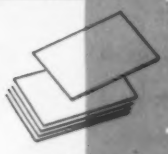

COPPER TUBING

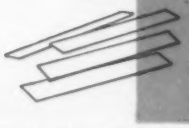

COPPER CONSTRUCTION PRODUCTS


COPPER AND BRASS WIRE

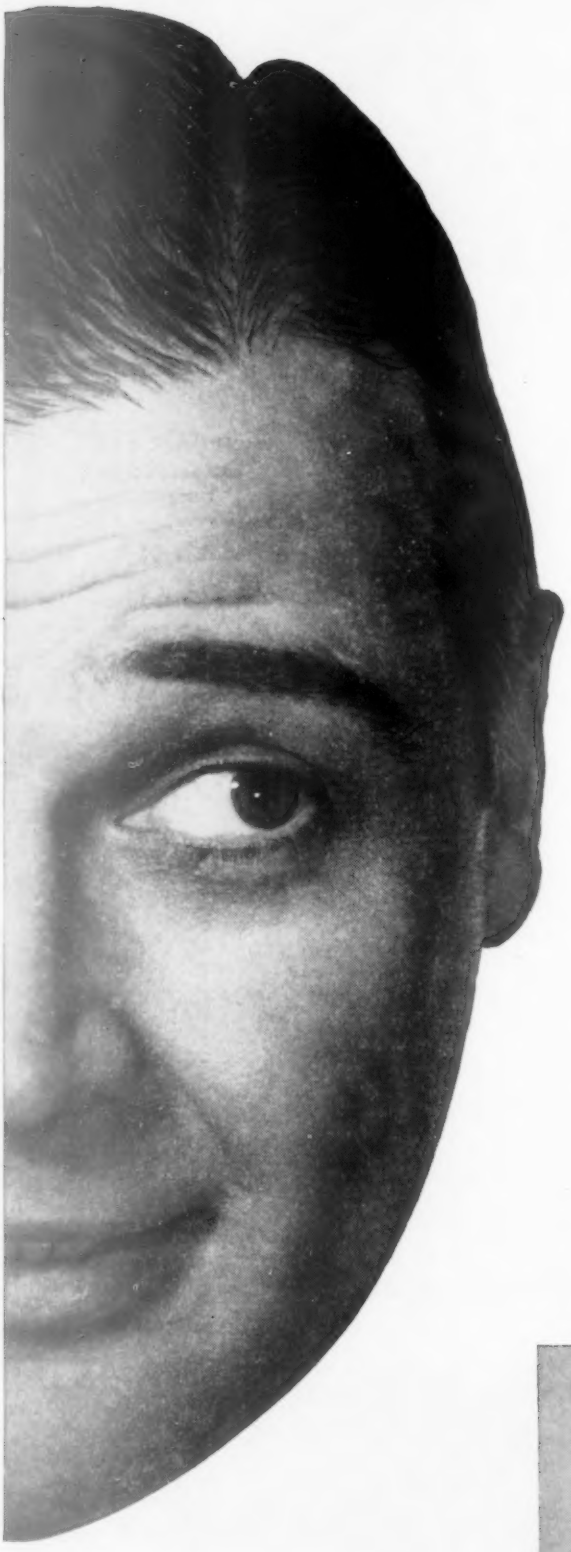

COPPER STRIP


COPPER NAILS

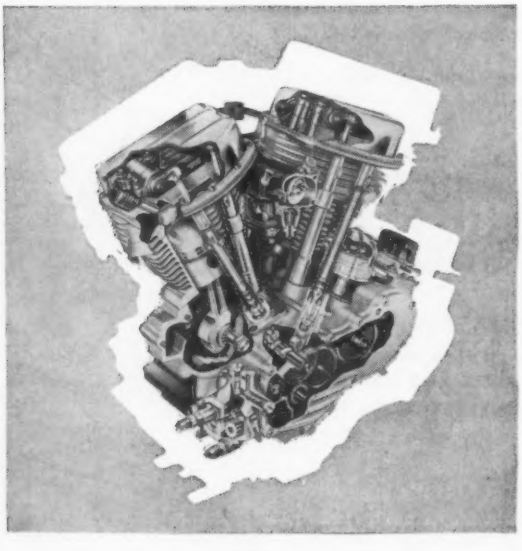

COPPER SHEETS


COPPER FLATS

For More Information Circle No. 541 on Inquiry Card—Page 17



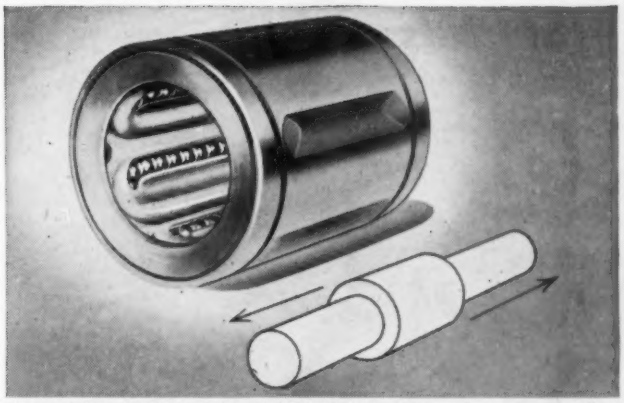
Have you overlooked the big reason for using alloy steels?



When horsepower was increased on the Harley-Davidson motorcycle from 30 to 55, company engineers were faced with designing a transmission that could take the tremendous impact and stress. Republic metallurgists suggested Republic's 8617 Alloy Steel. The result was: reduction of section; good heat treating and carburizing properties; *more horsepower from the same size transmission.*



PAINT REALLY ADHERES to Republic Electro Paintlok sheets. And rust is shut out. That's why these National Biscuit Company truck bodies are made of this zinc-plated steel sheet that's chemically treated to take paints, lacquers, synthetic enamels — and hold them for years. Tight zinc coating guards against underfilm corrosion and creeping rust. Manufacturers of everything from truck bodies to caskets have found production costs go down when they use these special sheets that hold paint longer and make products look better.



ELECTRUNITE CARBON STEEL MECHANICAL TUBING makes some products possible (like this ball bushing for linear motion by Thomson Industries). Problem here was close-tolerance tubing to house bearings and raceway, plus tough wear by bearings at contact points. Republic ELECTRUNITE Tubing supplied all these advantages along with good surface conditions; good dimensional control, both I.D. and O.D.; uniform wall thickness; uniform concentricity; uniformity to withstand heat treating.

A lot of people are under the impression that alloy steels are used only to get certain necessary properties. Heat-treating qualities, for example. Extra fatigue strength. High impact value. High shear resistance. Or many other reasons.

But analysis will show that alloy steels also save money.

There is no better reason for using them. In fact, we don't recommend them unless they do save money, somewhere along the line.

It's just a matter of how much money you want to save. And you save the maximum when you design parts and process properly for alloy steels. That's where we come into the picture. Our 3-D metallurgical service will help you get the properties you want in your products if your engineers and our metallurgists put their heads together.

Let's talk things over now before the competition steps out ahead. A call to your nearest Republic district sales office will get things under way. Have your secretary do it, soon.

REPUBLIC STEEL

World's Widest Range of Standard Steels and Steel Products



FREEDOM FROM RUST and corrosion makes any product made of Enduro Stainless Steel a good buy. Good example is laundry equipment. Made of stainless steel, it resists rust, corrosion and the action of most washing compounds and detergents. It's easy to keep clean and attractive. And because of resistance to wear, equipment cost can be written off quickly. Republic, pioneer in stainless steel, shows manufacturers how to use it profitably.

REPUBLIC STEEL

REPUBLIC STEEL CORPORATION
3126 East 45th St., Cleveland 27, Ohio

Please send me literature on these Republic products:

☐ Enduro Stainless Steel ☐ Mechanical Tubing
☐ Alloy Steels ☐ Electro Paintlok

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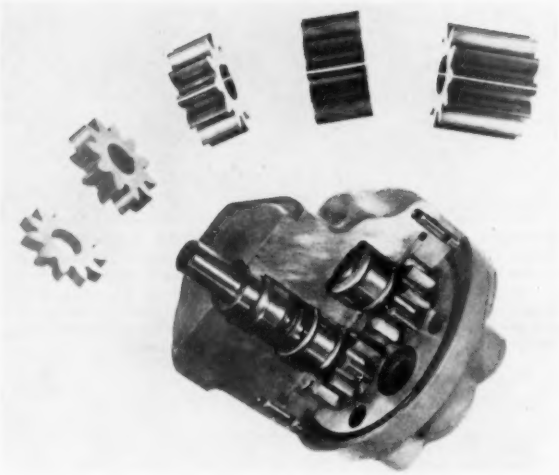
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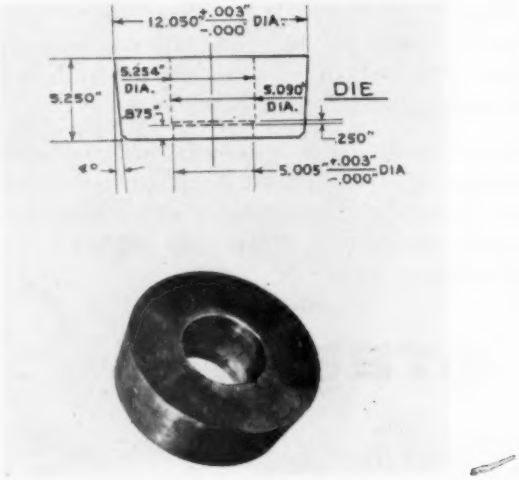
For More Information Circle No. 542 on Inquiry Card—Page 17



Powdered Metal Steel Replaces Cut Gears at 20% Saving

Hydreco Division, New York Air Brake Co., Cleveland, O., is using alloy steel gears made from powdered metal in some of its hydraulic pumps. In uniformity, surface finish, and resistance to wear, new gears have proved equal or superior to the cut steel gears formerly used at saving of about 20% in cost. The gears are made for Hydreco by Keystone Carbon Co. from powdered metal made by Vanadium-Alloys Steel Co.

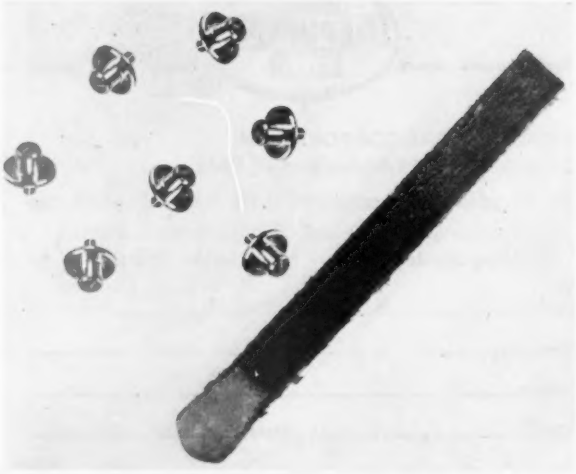
CIRCLE NO. 62 ON INQUIRY CARD—PAGE 17



Die Now Turns Out 85,000 Pieces; Former Output 100

A nationally known manufacturer engaged on rocket projectile work, uses a ring die to cold form a part for the nose of the projectile. The die has to withstand repeated impact of 1700 tons from a 2500-ton press. A ring die made from conventional die steel turned out an average maximum of 100 pieces before inside diameter of die exceeded tolerance requirements. By using a manganese-chromium-molybdenum alloy, to make the die, over 85,000 pieces were produced without die misshaping.

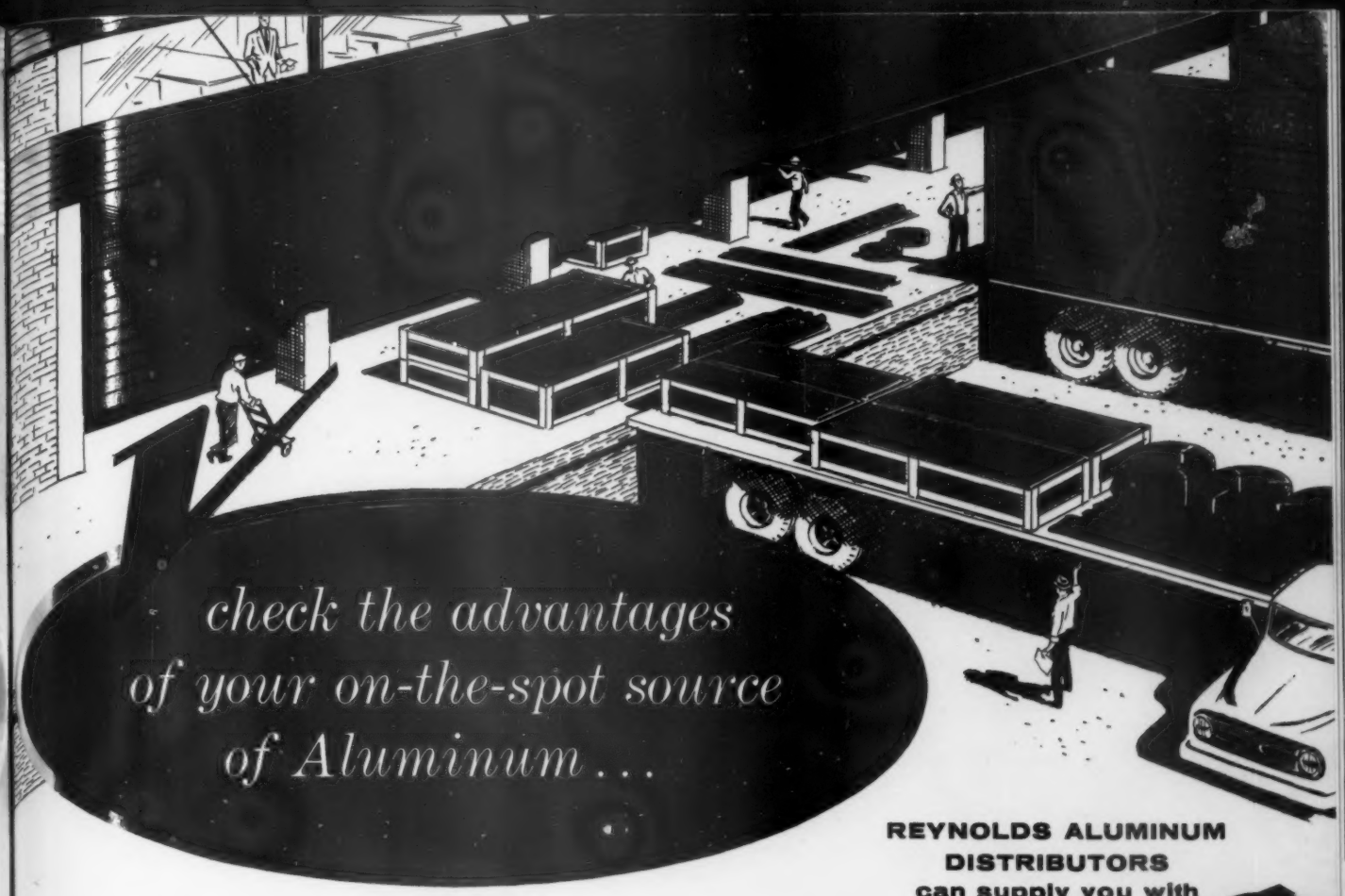
CIRCLE NO. 63 ON INQUIRY CARD—PAGE 17



Stainless Steel Cuts Rejects, Increases Output 18%

A midwestern manufacturer was having trouble making small sized pivots with the proper fine finish and holding them to close tolerances of from .0001″ to .0005″. Rejects were excessive, production behind schedule and costs too high. It was decided to replace the stainless steel used with stainless No. 8 (type 303), made to within a specific range of mechanical properties by the Carpenter Steel Co. The pivots are now turned out with excellent finish and the required tolerances. Rejects have been all but eliminated and output is up 18% because of less downtime for regrinding tools.

CIRCLE NO. 64 ON INQUIRY CARD—PAGE 17



check the advantages of your on-the-spot source of Aluminum...

...the nearby warehouse of your Reynolds Aluminum Distributor

FAST DELIVERY—All shipments are local from your Reynolds Distributor. You get quick action on your orders, have aluminum where you want it when you want it.

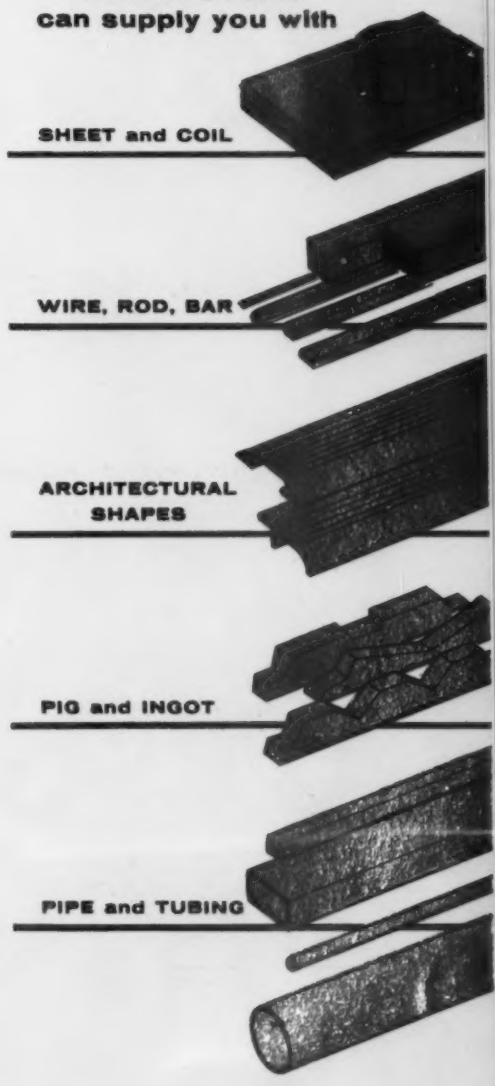
ECONOMY—Your Distributor's warehouse is an extension of your own stocking facility. He provides the space for stocking aluminum until your production lines need it.

SPECIAL EQUIPMENT—Reynolds Aluminum Distributors are equipped to provide such services as slitting, shearing and sawing. You buy just the aluminum you need for your product or requirements, ready for fabrication.

EXPERT ASSISTANCE—Distributor personnel are trained by Reynolds to help you use aluminum most advantageously, to solve your aluminum production problems.

Be sure to look for your Reynolds Aluminum Distributor listed under "Aluminum" in your local classified telephone directory.

REYNOLDS ALUMINUM DISTRIBUTORS can supply you with



REYNOLDS ALUMINUM

MODERN DESIGN HAS ALUMINUM IN MIND



. . . specify Asphalt-Aluminum roof coating (or paint) with the warranty of quality

GOOD Asphalt-Aluminum roof coating and paint add years of life to built-up and rustable metal roofs. That's because they actually cover with a coat of metallic aluminum. This metallic shield greatly retards decomposition of roofing material.

What's more, Asphalt-Aluminum coatings reflect up to 85% of the hot summer sun's rays, to keep plant interiors up to 15° cooler – employee efficiency stays up, air conditioning costs come down.

Reynolds does not make aluminum roof paints or coatings. But if you would like the names of manufacturers who rely on the consistent high quality of Reynolds Aluminum Pigments, we'll gladly send you a list. Just mail the coupon, below.

THIS IS YOUR WARRANTY OF QUALITY!

It's your assurance of an approved, durable, elastic vehicle and at least two full pounds of metallic aluminum in every gallon. Better Asphalt-Aluminum roof coatings and paints carry this Warranty seal on every container.



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ALUMINUM PAINT FOR PLANT MAINTENANCE

Resists rust, smoke and fume corrosion, moisture – reduces evaporation of volatiles and heat expansion – renews appearance – increases plant lighting efficiency. One coat usually does the job. Order lasting *protection* – order a good brand of Aluminum Paint!

This advertisement appears in the interest of the Paint Industry of America

Life of These Punches Went Up

350%

with

Ludlum DBL-3
High Speed Steel



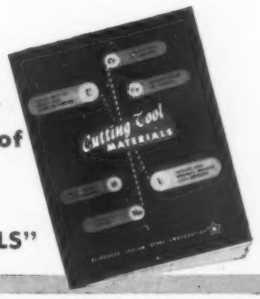
Application of Special Heat Treatment Did the Trick:

These DBL-3 punches (2⅞" dia. by 10½" long) are used to draw and flatten hot or cold rolled stock .140" thick. With conventional heat treatment, their performance was 25% better than Material B and 50% better than Material C. But A-L Metallurgical Service recommended the *additional* heat treatment listed below, improving the performance of DBL-3 to 150% over B *and 350% over Grade C!*

1. Carburize at 1950°F
2. Oil Quench
3. Draw at 1025°F
4. Draw at 1025°F again
5. Finish grind
6. Draw at 750°F to relieve grinding stress
7. Nitride 72 hours at 950°F (case depth of approx. .015)

Ludlum DBL-3 holds a fine grain over a wide hardening range. With its higher carbon and vanadium content, it also has better abrasion resistance than other standard high speed tool steels. Our Metallurgical Service is ready to help improve *your* production operations, too. Just call our nearest branch office, or write *Allegheny Ludlum Steel Corporation, Oliver Bldg., Pittsburgh 22, Pa.*

Write for your copy of "CUTTING TOOL MATERIALS"



This 36-page booklet analyzes and compares all A-L grades: carbon, high speed, cast alloy and carbides. Includes data on handling and treatment . . . invaluable for production men.

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For complete **MODERN** Tooling, call

Allegheny Ludlum

AL® FINE TOOL STEELS SINCE 1854

W&D 8186

←For More Information Circle No. 543 on Inquiry Card—Page 17

For More Information Circle No. 544 on Inquiry Card—Page 17



Galvanized Roof Lasted 4 Years; Stainless Still Going After 7

Armco Steel Corporation used to use 18-gage galvanized corrugated steel roofing on the building that houses the pig machine in one blast furnace plant. Corrosive conditions were such that the roofing had to be replaced every 3 or 4 years. Flat stainless steel sheets were tried in place of the galvanized. As of now the stainless roof is in excellent condition after more than 7 maintenance-free years of service.

CIRCLE NO. 65 ON INQUIRY CARD—PAGE 17



Plastic Part Works Better, Cuts Finishing Costs

An air cylinder originally designed as a die casting with the piston as a fabricated metal part is now housed in an impact Durez molding compound. The air cylinder, part of the IBM electric typewriter, as previously designed required multiple close tolerance machining operations. The nylon-flock-filled impact material that replaced metal is dimensionally stable, and the new part requires practically no secondary operations. IBM reports it has not only realized an appreciable saving, but has a better operating unit.

CIRCLE NO. 66 ON INQUIRY CARD—PAGE 17



Double Forging Die Life

A New England firm formerly got only 40,000 forgings from dies used to make tool steel claw hammers. Now it gets 80,000. It rebuilds dies with a special purpose electrode, EutecTrode 670 DC. Previously, the face of the die was shaved off. Then the die was resunk. It was possible to resink each die but three times. Repairing them by welding results in greater production from one repaired die than with 2 new ones—and cost savings add up accordingly.

CIRCLE NO. 67 ON INQUIRY CARD—PAGE 17

It will pay you to MEET THE H & H MAN in your area



"H & H Metalflo, the famous brazed brass tubing, is saving money for so many of my customers, I hope you'll let me show you where it can do the same for you."





If you are now using seamless brass or other tubing in an application that does not involve pressure, it's time you learned about H & H METALFLO, the *economical* brazed brass tubing. Manufacturers of many different types of products, from car heaters to fireplace fixtures, are saving and thus *earning* money with METALFLO. When can it start doing the same for you? A collect telephone call or telegram to our plant will bring you the complete story.

Originators and Sole Makers of METALFLO Tubing

Expect the BEST brass and copper products from

H & H Tube
AND MANUFACTURING COMPANY

256 N. Forman Avenue, Detroit 17, Michigan • Offices from Coast to Coast

METALFLO

Outside Dimension	Wall Thickness
5/16 thru 3/8	.015 to and including .025
5/8 thru 1 1/16	.012 to and including .035
1 1/16 thru 1"	.015 to and including .035
1" thru 1 1/16	.020 to and including .035
1 1/16 thru 1 1/8	.025 to and including .035
1 1/8 thru 1 1/16	.032 to and including .035

Price Sheets Available Upon Request



METALFLO LOCKSEAM COIL STRIP AND SEAMLESS TUBING TUBULAR PARTS

ELECTROMET

TRADE-MARK

ALLOYS FOR THE STEEL, IRON, AND NON-FERROUS INDUSTRIES

BOREON ALLOYS

Ferroboron Min. 10.00% Boron Grade	Aluminum ...max. 0.50% Carbon .....max. 1.50%	Increases hardenability of steel; also, for additions to malleable iron and aluminum alloys.
Min. 17.50% Boron Grade	Aluminum ...max. 0.50% Carbon .....max. 0.50%	
Manganese-Boron	Boron .....min. 17.50% Manganese ..approx. 75% Carbon .....max. 3% Iron .....max. 5%	Used to cleanse and deoxidize non-ferrous alloys.

CALCIUM ALLOYS

Calcium-Silicon	Calcium .....30 to 33% Silicon .....60 to 65% Iron .....1.50 to 3%	Deoxidizer for quality ingot steel. Also used in high-tensile gray irons.
Calcium-Manganese-Silicon	Calcium .....16 to 20% Manganese ...14 to 18% Silicon .....53 to 59%	A complex deoxidizer used widely in production of steel castings.
Calcium Metal Regular Grade	Calcium .....98% Balance largely Calcium Chloride	Reducing agent in metallurgical applications, deoxidizer and degasifier for non-ferrous metals.
Distilled Grade	Calcium..approx. 99.50% Balance largely Magnesium	For special applications requiring calcium of very high purity.

CHROMIUM ALLOYS

"Simplex" Low-Carbon Ferrochrome No. 1	Chromium ....63 to 66% Silicon .....5 to 7% Carbon ....max. 0.010% or 0.025%	
2% Nitrogen-Bearing Grade	Chromium ....62 to 65% Silicon .....5 to 7% Nitrogen .....2 to 2.5% Carbon ....max. 0.025%	For producing stainless steel, particularly the very low-carbon grades. The silicon in the alloy reduces metal oxides from the slag back into the bath. Rapid solubility of the alloy saves furnace time. "Simplex ferrochrome No. 2 is suitable for producing stainless steel where high silicon is not desirable.
5% Nitrogen-Bearing Grade	Chromium ....60 to 63% Silicon .....5 to 7% Nitrogen .....5 to 6% Carbon ....max. 0.025%	
"Simplex" Low-Carbon Ferrochrome No. 2	Chromium ....63 to 66% Silicon .....max. 1.50% Carbon .....max. 0.03%	
2% Nitrogen-Bearing Grade	Chromium ....62 to 65% Silicon .....max. 1.50% Nitrogen .....2 to 2.5% Carbon .....max. 0.03%	
5% Nitrogen-Bearing Grade	Chromium ....60 to 63% Silicon .....max. 1.50% Nitrogen .....5 to 6% Carbon .....max. 0.03%	
Low-Carbon Ferrochrome (Other Grades)	Chromium ....67 to 71% Silicon ...0.30 to 1.00% Carbon (10 Grades) max. 0.02 to max. 2.00%	Production of stainless steels and high-temperature alloys requiring low carbon content.
High-Carbon Ferrochrome Max. 3.00% Carbon Grade	Chromium ....60 to 65% Silicon .....max. 2%	
Max. 4.50, 5.00, or 6.00% Carbon Grade	Chromium ....67 to 70% Silicon .....1 to 2%	For production of stainless steel, as well as engineering alloy steels and other alloy steels.
Max. 7.00% Carbon Grade	Chromium ....66 to 69% Silicon .....1 to 3%	
Min. 7.00% Carbon Grade	Chromium ....65 to 68% Silicon .....1 to 3%	
57 to 65% Chromium Grade	Carbon ....max. 5 or 6% Silicon ...max. 3.5 or 4%	
Nitrogen-Bearing Low-Carbon Ferrochrome	Chromium ....65 to 70% Silicon ...0.30 to 1.00% Carbon .....max. 0.10% Nitrogen ..0.75 to 2.00%	For additions of nitrogen to improve properties of high-chromium steels.
"SM" Ferrochrome	Chromium ....60 to 65% Silicon .....4 to 6% Carbon .....4 to 6% Manganese ....4 to 6%	A high-solubility chromium addition for steel or iron in either furnace or ladle.

CHROMIUM ALLOYS cont.

Exothermic Ferrochrome 5	Chromium ..approx. 50% Carbon ....approx. 2.5%	These improved exothermic ladle alloys have high solubility, low carbon pickup, and high ignition temperature.
Exothermic Ferrochrome 8	Chromium ..approx. 48% Carbon .....approx. 4%	
Exothermic Silicon-Chrome	Chromium ..approx. 46% Silicon .....approx. 23% Carbon .....max. 1.00%	
Foundry Ferrochrome High-Carbon Grade	Chromium ....62 to 66% Silicon .....7 to 10% Carbon .....5 to 7%	Developed especially for high-solubility ladle additions of chromium to improve composition and properties of cast iron.
Low-Carbon Grade	Chromium ....50 to 54% Silicon .....28 to 32% Carbon .....max. 1.25%	
Chromium Metal High-Carbon Grade	Chromium ....87 to 90% Carbon .....9 to 11% Iron .....max. 1.25%	Production of wide variety of non-ferrous chromium-bearing alloys, including electrical resistance alloys and high-temperature alloys.
Electrolytic Grades Laboratory Grade	Chromium ..min. 99.20% Iron .....max. 0.03%	
Commercial Grade	Chromium ..min. 99.00% Iron .....max. 0.30%	
"EM" Ferrochrome-Silicon	Chromium ....39 to 41% Silicon .....42 to 46% Carbon .....max. 0.05%	Used in production of stainless steel to reduce metal oxides from the slag back into bath.
"EM" Ferrosilicon-Chrome	Chromium ....50 to 54% Silicon .....28 to 32% Carbon .....max. 1.25%	For adding chromium and silicon to steels containing up to 1 or 2 per cent chromium.
"EM" Chromium Briquets (Hexagonal Shape)	Chromium .....2 lb. Total Weight .....3⅜ lb.	For adding chromium to cast iron in the cupola.

COLUMBIUM ALLOYS

Ferrocolumbium	Columbium ...50 to 60% Silicon .....max. 8% Carbon .....max. 0.40%	Stabilizer in austenitic chromium-nickel stainless steels. Also constituent of high-temperature alloys.
Ferrotantalum-Columbium	Columbium ..approx. 40% Tantalum ...approx. 20% Cb+Ta .....min. 60% Carbon .....max. 0.30% Iron .....approx. 25%	Used to supplement ferrocolumbium in chromium-nickel stainless steels and high-temperature alloys.

MANGANESE ALLOYS

Standard Ferromanganese Regular Grade	Manganese ...74 to 76% Carbon .....approx. 7% Silicon .....max. 1%	Most common means of adding manganese to steel for both alloying and deoxidizing purposes. Also for counteracting sulphur in steel and cast iron.
Low-Phosphorus Grade	Manganese ...78 to 80% Carbon .....max. 7% Silicon .....max. 2% Phosphorus ..max. 0.10%	
Low-Carbon Ferromanganese Low-Phosphorus Grade	Manganese ....min. 90% Carbon .....max. 0.07% Phosphorus ..max. 0.06%	Additions of manganese to steels of low-carbon specification, particularly stainless steels of 18 per cent chromium, 8 per cent nickel type.
Regular Grades	Manganese ...85 to 90% Carbon ..max. 0.07, 0.10, 0.15, 0.30 or 0.50%	
Regular Grade (High-Silicon)	Manganese ...80 to 85% Carbon .....max. 0.75% Silicon .....5 to 7%	
"Mansiloy" Alloy	Manganese ...60 to 63% Silicon .....28 to 31% Carbon .....max. 0.07% Phosphorus ..max. 0.05%	Used in production of stainless steels to reduce metal oxides from the slag back into the bath.
Silicomanganese Max. 1.50% Carbon Grade	Manganese ...65 to 68% Silicon .....18 to 20%	A versatile alloy useful as furnace block, deoxidizer, and also for making manganese additions to steel in the ladle or in the furnace.
Max. 2.00% Carbon Grade	Manganese ...65 to 68% Silicon ....15 to 17.50%	
Max. 3.00% Carbon Grade	Manganese ...65 to 68% Silicon ....12 to 14.50%	

All of the alloys and metals listed are produced in the usual lump, crushed, or ground sizes, except where other special forms are indicated.

MANGANESE ALLOYS cont.

Medium-Carbon Ferromanganese	Manganese ...80 to 85% Carbon ...1.25 to 1.50% Silicon.max. 1.00 or 1.50%	For making low- and medium-carbon manganese steel and Hadfield steel.
Low-Iron Ferromanganese	Manganese ...85 to 90% Carbon ...approx. 7.00% Silicon .....max. 3% Iron .....max. 2%	For high manganese additions to certain non-ferrous alloys, particularly aluminum.
Manganese Metal Electrolytic Grade	Manganese .min. 99.90%	Used wherever manganese of high purity is required in the production of stainless steel and non-ferrous alloys.
Nitrogen-Bearing Grade	Manganese ..approx. 93% Nitrogen ....approx. 6%	
"EM" Silico-manganese Briquets (Square Shape)	Manganese .....2 lb. Silicon .....½ lb. Total Weight .....3½ lb.	For adding manganese (with silicon) to cast iron in the cupola.
"EM" Ferro-manganese Briquets (Oblong Shape)	Manganese .....2 lb. Total Weight .....3 lb.	For adding manganese (without silicon) to cast iron in the cupola.

SILICON ALLOYS

50% Ferrosilicon		
Regular Grade	Silicon .....47 to 51%	Deoxidizer for most grades of killed or semi-killed steel. Blocking grade specially sized for maximum efficiency.
Blocking Grade	Silicon .....47 to 51%	
Boron-Bearing Grade	Silicon .....47 to 51% Boron ....0.04 to 0.05%	
Low-Aluminum Grade	Silicon .....47 to 51% Aluminum ...max. 0.40% or 0.10%	
65% Ferrosilicon		
Regular Grade	Silicon .....65 to 70%	For furnace or ladle addition to steels.
Low-Impurity Grade	Silicon ..61.50 to 66.50% Aluminum ...max. 0.50% Total Impurities max. 1.00%	Mainly for production of electrical sheet steel.
75% Ferrosilicon		
Regular Grade	Silicon .....73 to 78%	Deoxidizer and alloy for production of high-silicon spring and electrical sheet steel. Graphitizing inoculant for cast iron.
Low-Aluminum Grade	Silicon .....73 to 78% Aluminum ...max. 0.50%	
85% Ferrosilicon		
Regular Grade	Silicon .....83 to 88%	Enables melter to add higher percentages of silicon without chilling metal in ladle. Graphitizing inoculant for cast iron.
Calcium-Bearing Grade	Silicon .....83 to 88% Calcium ....min. 0.50%	
Low-Aluminum Grade	Silicon .....83 to 88% Aluminum ...max. 0.50%	
90% Ferrosilicon		
Regular Grade	Silicon .....92 to 95%	Permits large additions of silicon without harmful chilling effect.
Low-Aluminum Grade	Silicon .....92 to 95% Aluminum ...max. 0.50%	
Silicon Metal		
Regular Grade	Silicon ...min. 97 or 96% Iron .....max. 1 or 2%	Additions of silicon to non-ferrous metals, particularly aluminum and copper.
Purified Grade	Silicon ..99.70 to 99.90% Iron .....005 to .015%	For applications in non-ferrous industry requiring silicon of high purity.
Low-Calcium Grade	Silicon .....min. 97% Iron .....max. 1% Calcium .....max. 0.10%	For high-silicon aluminum alloys where calcium is detrimental.
Low-Aluminum Grade	Silicon .....min. 98% Iron .....max. 1% Aluminum ...max. 0.10%	For the production of silicon-copper alloys where aluminum is detrimental.
"EM" Silicon Briquets		
Large Size (Cylindrical or Brick-Shape)	Silicon .....2 lb. Total Weight .....5 lb.	For adding silicon to cast iron in the cupola.
Small Size (Cylindrical Shape)	Silicon .....1 lb. Total Weight .....2½ lb.	

SILICON ALLOYS cont.

"SMZ" Alloy	Silicon .....60 to 65% Manganese ....5 to 7% Zirconium .....5 to 7%	Particularly strong graphitizing inoculant used in cast iron.
Magnesium-Ferrosilicon		
Regular Grade	Silicon .....43 to 47% Magnesium ..7.5 to 9.5%	For addition to cast iron and steel to obtain special properties.
Cerium-Bearing Grade	Cerium ...approx. 0.50%	

TITANIUM ALLOYS

Ferrotitanium	Titanium ..27 to 32%, 50 to 55%, or approx. 70% Carbon .....max. 0.10%	For stabilized stainless steels and high-temperature metals.
Silicon-Titanium	Titanium .....40 to 50% Silicon .....45 to 50% Iron .....max. 3%	For additions of titanium to steels or non-ferrous alloys.
Manganese-Nickel-Titanium	Titanium ...approx. 48% Nickel .....approx. 31% Manganese .approx. 6%	Deoxidization of nickel alloys.

TUNGSTEN ALLOYS

Ferrotungsten	Conforming to A.S.T.M. Spec. A 144-50	Production of tool and die steels; also high-temperature alloys.
Tungsten Metal Powder Melting Grade	Tungsten ...min. 98.80% Total Carbon..max. 0.25%	Production of tungsten steels and cast tungsten carbide.
Calcium Tungstate	Tungstic Oxide.68 to 72%	For making tungsten chemicals and other tungsten products.
Calcium Tungstate Nuggets	Tungstic Oxide.68 to 72%	Making tool steels and high-temperature alloys.
Ammonium Paratungstate	Tungstic Oxide.min. 88.7%	Intermediate for tungsten products.

VANADIUM ALLOYS

Ferrovanadium	Vanadium ....50 to 55% or 70 to 75% Carbon ..max. 0.20, 0.50, or 3.00% Silicon ..max. 1.50, 2.00, or 8%; and approx. 10%	Production of tool and engineering steels, high-strength structural steels, non-aging rimming steels, and wear-resistant irons.
Vanadium Oxide Fused	V_2O_5 .....86 to 89% Na_2O .....approx. 10% CaO .....approx. 2%	For addition of vanadium to steel and for manufacturing catalysts.
Sodium Polyvanadate (Red Cake)	V_2O_5 .....approx. 85% Na_2O .....approx. 9%	
High-Purity	V_2O_5 ....approx. 99.50%	For manufacture of vanadium compounds, including vanadium catalysts.
Ammonium Metavanadate	NH_4VO_3 .....min. 99%	

ZIRCONIUM ALLOYS

12 to 15% Zirconium Alloy	Zirconium ....12 to 15% Silicon .....39 to 43% Carbon .....max. 0.20%	A powerful deoxidizer. Also increases depth of hardening of steel.
35 to 40% Zirconium Alloy	Zirconium ....35 to 40% Silicon .....47 to 52% Carbon .....max. 0.50%	Deoxidizer for fine grades of alloy steels.
"EM" Zirconium Briquets (Cylindrical Shape, Reddish Color)	Zirconium .....0.55 lb. Silicon .....1.90 lb. Total Weight .....5 lb.	For adding zirconium and silicon to cast iron in the cupola.

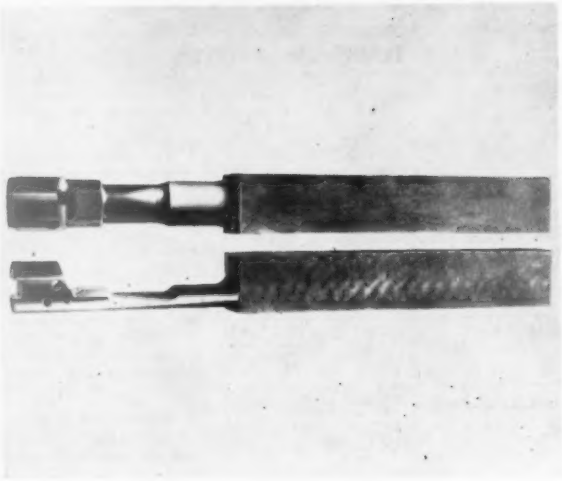
"Electromet," "EM," "Mansiloy," "Simplex," "SM," and "SMZ," are trade-marks of Union Carbide and Carbon Corporation.

IF YOU HAVE A METALS PROBLEM

More than 50 different alloys and metals are produced by ELECTROMET. If you need help in selecting the proper alloys, be sure to consult one of ELECTROMET'S specially trained metallurgists and engineers. Address your inquiries to one of the offices listed at right.

Birmingham 1, Ala.....P.O. Box 196
Chicago 1, Ill.....230 N. Michigan Avenue
Cleveland 14, Ohio.....1300 Lakeside Avenue
Detroit 21, Mich.....10421 West Seven Mile Road
Houston 11, Texas.....6119 Harrisburg Boulevard
Los Angeles 58, Calif.....2770 Leonis Boulevard
New York 17, N.Y.....30 East 42nd Street
Pittsburgh 22, Pa.....Oliver Building
San Francisco 6, Calif.....22 Battery Street
In Canada: Electro Metallurgical Company, Division of Union Carbide Canada Limited, Welland, Ontario

ELECTRO METALLURGICAL COMPANY A Division of Union Carbide and Carbon Corporation
30 East 42nd Street UCC New York 17, N. Y.



Chrome-Nickel Alloy Steel Ends Twisting; Saves Up to 75%

A one-piece boring bar is used by a large eastern manufacturer to process ring gear carrier housings. Strains put on the bar by the housings were twisting the thin shoulders of the bar when it was made of SAE 3140 and 3250, and 100 bars had to be made at a time to keep production going. When chrome-nickel alloy steel, supplied by the Carpenter Steel Co., was substituted to make the bars, twisting trouble all but disappeared. Only 25 bars have now to be made at a time to maintain output, thus saving 75% on material, labor and overhead costs.

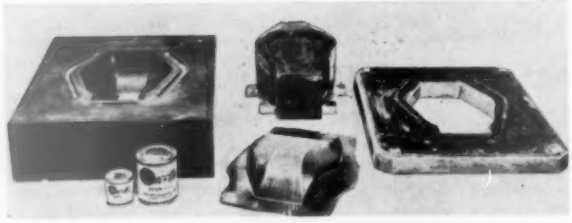
CIRCLE NO. 68 ON INQUIRY CARD—PAGE 17



Power Shovel Loading Capacity Increased 25%

A 50 cu. ft. power shovel, operated by Hanna Coal Co. in its stripping operations has had its loading capacity increased by 10 cu. yds. The entire bucket is fabricated of ¾" to 6½" constructional steel alloy, made by U. S. Steel Corp. The 6½" T-1 alloy steel plate has replaced large castings a foot thick in the lip of the bucket. In addition to increasing capacity of the bucket, use of the T-1 alloy steel has meant lighter weight, lower construction and maintenance costs and longer life.

CIRCLE NO. 69 ON INQUIRY CARD—PAGE 17

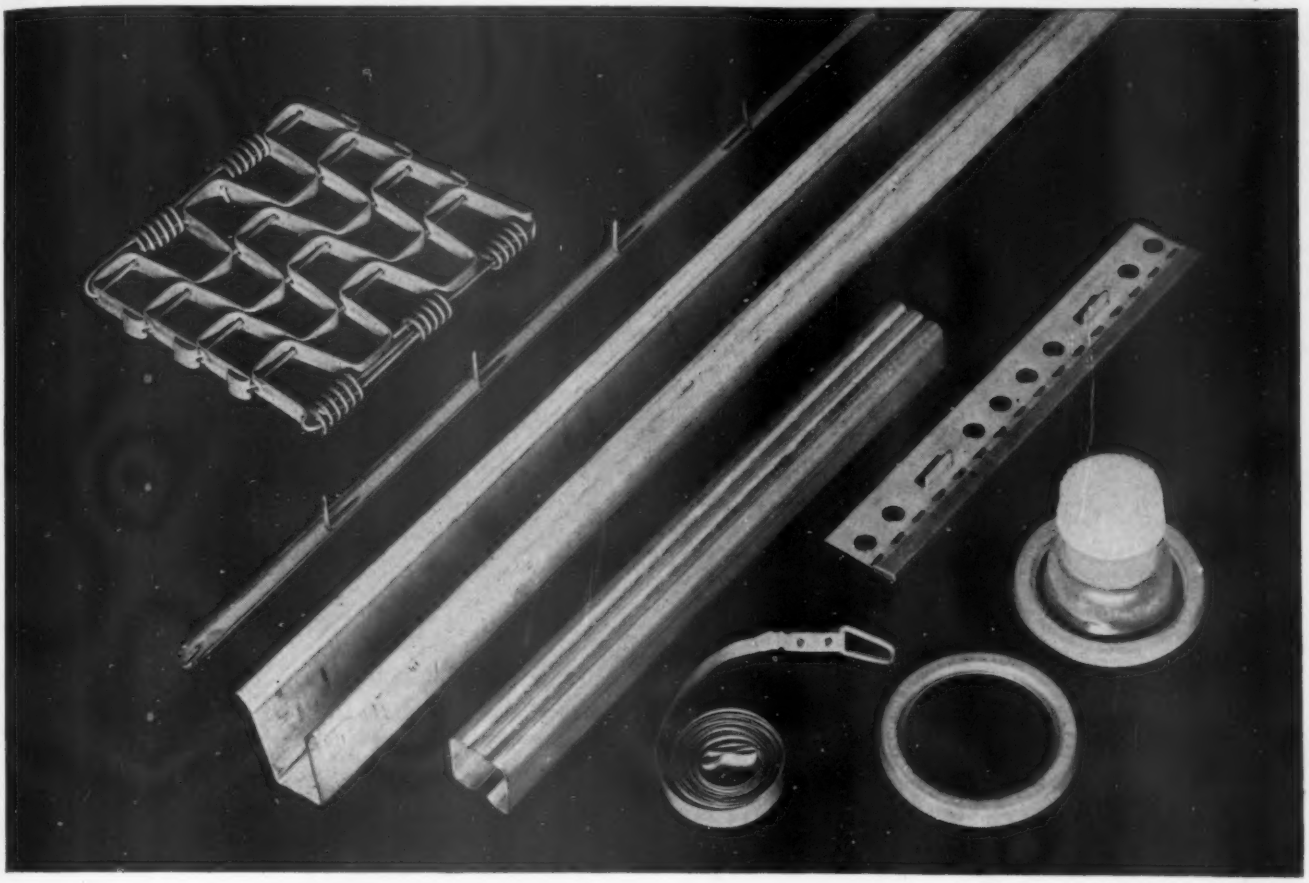


Resins Speed Die Production Lower Output Costs 45%

Instead of metals, Ren-ite Plastics, Inc., Lansing, Mich., uses epoxy resin compounds, made by Bakelite Co., to make hydroform draw and blanking dies for forming parts out of metal sheets. From 50% to 70% is saved in production time and 45% in over-all output costs. The laminated plastic dies are produced in a few weeks, while steel dies require four to eight months to produce. Besides, the plastic dies have greater dimensional stability and higher resistance to moisture or temperature change.

CIRCLE NO. 70 ON INQUIRY CARD—PAGE 17

BRAINARD ELECTRO-GALVANIZED STEEL



All these parts have a protective coating...
YET REQUIRE NO FINISHING!

Specify Brainard electro-galvanized steel when parts require protection against rust and corrosion . . . you eliminate the coating operation. This pre-coated steel eliminates expensive plating and finishing . . . improves product life and appearance.

The galvanized coating — an integral part of the metal—protects both inside and outside of formed and drawn parts . . . is not affected by forming operations. Coating is hard and uniform, with thickness controlled within .0002.

If your parts require such protection, it will pay you to investigate. Let Brainard quote on your requirements.

Brainard®
SHARONSTEEL
STEEL DIVISION
SHARON STEEL CORPORATION

Find out how Brainard's new facilities assure you a dependable source of supply. Send coupon for free booklet.

BRAINARD STEEL DIVISION
Dept. A-6, Griswold Street, Warren, Ohio

Please send free descriptive booklet on Brainard electro-galvanized steel.

Name_____

Position_____

Company_____

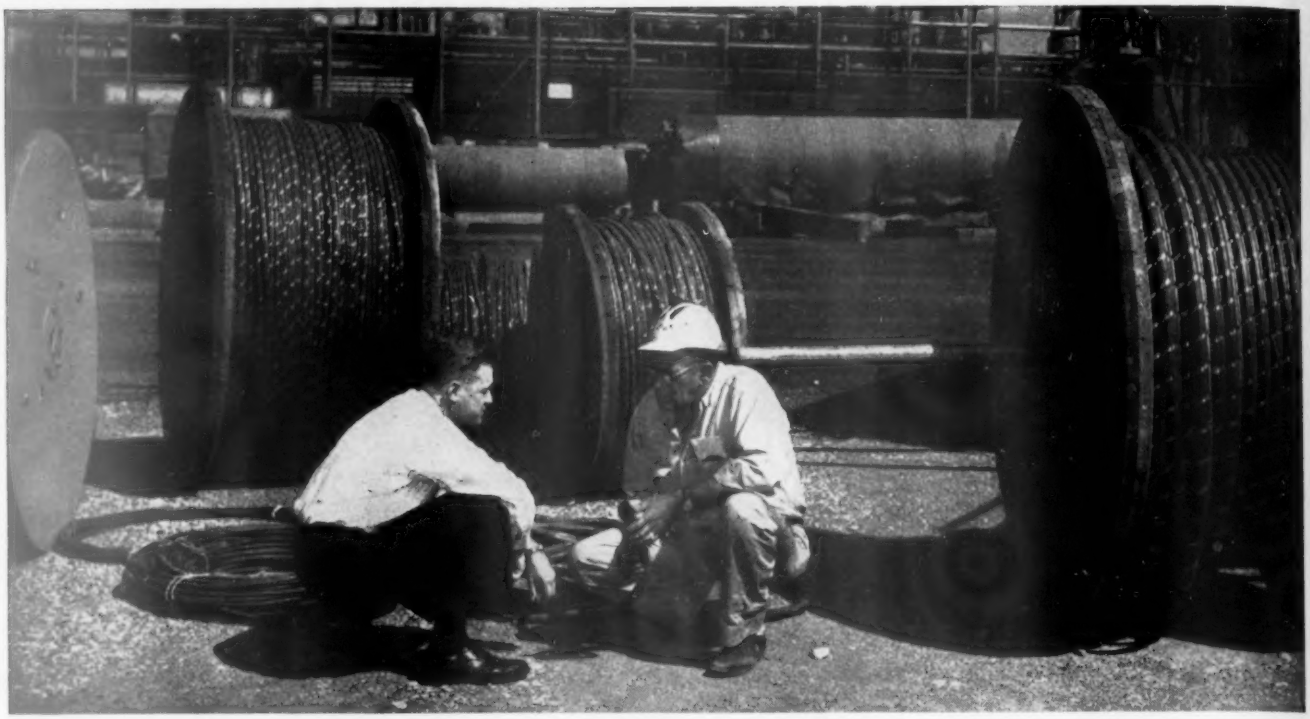
Street_____

City_____ **State**_____

COMPLETE STRAPPING SYSTEMS & MATERIALS • WELDED STEEL TUBING • ELECTRO-GALVANIZED STEEL • SCAFFOLDING • PALLET RACKS • BUILDING PRODUCTS

Offices in principal cities throughout the U. S.

For More Information Circle No. 547 on Inquiry Card—Page 17



Paul E. Sholders (right) talks it over with Du Pont technical representative J. P. Davidson. Reels of neoprene-jacketed telephone cable are in background.

"You can't beat neoprene-jacketed cable for corrosion resistance"

—*says Paul E. Sholders*, Electrical and Instrument Foreman at Ohio Oil Co. Refinery, Robinson, Ill.

"Corrosive chemical vapors, weathering, and exposure—they all gang up on overhead telephone cable in a refinery," continues Mr. Sholders. "Less than five years ago we installed one type of telephone cable, and we're already replacing 2½ miles of it. This time we're using cable with a neoprene jacket and a stainless steel carrier. We expect to get a lot longer service with the neoprene."

Mr. Sholders has reason to be confident. He knows from experience that neoprene jackets can take it. There are more than 20 miles of neoprene-jacketed control cable in the refinery—some of it 10 years old, and all in good condition. Neoprene jackets also guard aerial power cable and underground power cable up to 600 volts against electrolytic attack, oil and grease at this modern oil refinery.

In this new application, as in industrial rubber goods of all types, neoprene extends service life, cuts maintenance costs. Give your supplier a call. He'll be glad to show you the neoprene products he sells.

REMEMBER, OF ALL RESILIENT MATERIALS, ONLY NEOPRENE HAS BALANCED RESISTANCE TO:

- Corrosive atmospheres
- Oils, solvents, most chemicals
- Electrolytic attack
- Heat
- Sunlight and weathering
- Flex cracking
- Abrasion, cutting, chipping
- Oxidation and aging

NEOPRENE

The rubber made by Du Pont since 1932

DU PONT

REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

MAIL THIS COUPON TODAY!



FREE! THE NEOPRENE NOTEBOOK. Every issue contains interesting stories about products made with neoprene. Actual case histories give you the facts about neoprene's longer service life. Clip this coupon to get on the mailing list.

E. I. du Pont de Nemours & Co. (Inc.)
Rubber Chemicals Div. PG-6
Wilmington 98, Delaware

*Name*_____ *Position*_____

*Firm*_____

*Address*_____

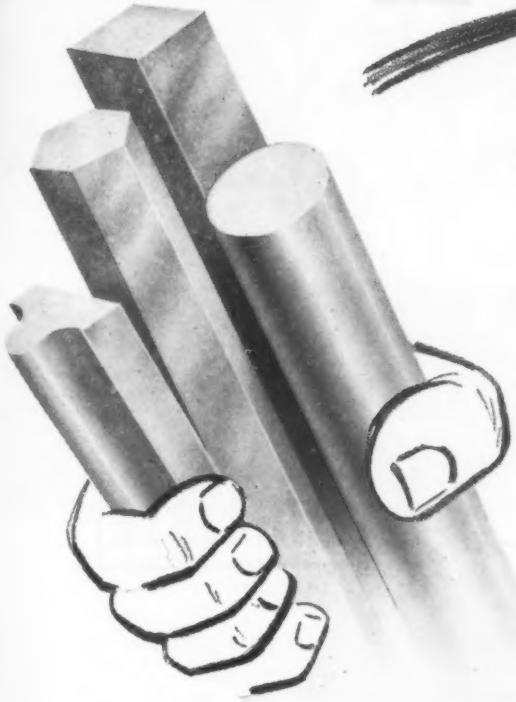
*City*_____ *State*_____

For More Information Circle No. 548 on Inquiry Card—Page 17

For More Information Circle No. 549 on Inquiry Card—Page 17→

FOUR *REALLY TOUGH* MUELLER BRASS CO. REFRACTORY BRONZE ALLOYS IN ROD FORM





"TUF-STUF" ALUMINUM BRONZE
"600" SERIES BEARING BRONZE
MANGANESE BRONZE
ALUMINUM SILICON BRONZE

These four Mueller Brass Co. alloys have been specifically formulated to meet the demands of applications where manufactured parts must stand up under the most adverse operating conditions. While these alloys are tough, they are relatively easy to machine. Parts made from these alloys are in dependable daily service and range from marine hardware to valve guides in aircraft engines. As specialists in brass and bronze alloys, the Mueller Brass Co. can offer you the exact alloy best suited to meet the requirements of any application problem. Write us today for details.

NAME OF ALLOY	ALLOY NO.	YIELD STRENGTH AT 0.5% EXTENSION LBS./SQ. IN.	TENSILE STRENGTH LBS./SQ. IN.	ELONGATION % IN 2 IN.	BRINELL HARDNESS	RELATIVE MACHINABILITY —FREE CUTTING BRASS = 100%	ALLOY CHARACTERISTICS
TUF-STUF ALUMINUM BRONZE	224-E	60,000	90,000	15	175	30	Resists oxidation and retains strength at elevated temperatures. Lightweight. Used in aviation industry.
TUF-STUF ALUMINUM BRONZE	224-C	62,000	95,000	9	185	35	Properties generally higher than 224-E. Non-Galling. Acid and corrosion resistant.
MANGANESE BRONZE—A	241-A	55,000	78,000	20	150	25	High torque resistance. Tough. For screw machine parts and forgings — valve stems, balls, airplane parts.
MANGANESE BRONZE (HIGH TENSILE—GRADE B)	721	68,000	115,000	10	200	35	Highest strength of the copper base alloys. Good shock and wear resistant properties. Used for rollers, rotors, valve stems.
FORGEABLE BEARING BRONZE	600	40,000	78,000	15	165	25	For use where excessive pounding action encountered. Excellent bearing properties. For bushings, gears, marine hardware, etc.
FORGEABLE BEARING BRONZE	602	40,000	74,000	12	150	65	Used with hard or soft mating members that do not have a high polish. Modification of 600 alloy—for use where difficult machining is necessary.
ALUMINUM SILICON BRONZE	802	45,000	90,000	15	175	65	Excellent machinability for high strength bronze. Corrosion resistant. For pole line hardware. Non-magnetic.

149

MUELLER BRASS CO. PORT HURON 21, MICHIGAN



for equal service regardless of size

– call CRUCIBLE

An order for pounds or tons gets you the same "big order" service from Crucible. For no matter what quantity or type of special steel you specify, your order will be filled quickly from local stocks at your nearby Crucible warehouse. Local stocks include tool, stainless, alloy, high speed, almost every type of special purpose steel . . . in practically every size, finish and grade.

Let our large inventory work for you. Next time you need special steel, call Crucible – *big enough to serve you, small enough to want to.*

Stocks maintained of
Rex High Speed Steel . . . ALL grades of Tool Steel (including Die Casting and Plastic Die Steel, Drill Rod, Tool Bits, and Hollow Tool Steel Bars) . . . Stainless Steel (Sheets, Bars, Wire, Billets, Electrodes) . . . Max-el . . . AISI Alloy, Onyx Spring, Hollow Drill Steel and other special purpose steels.

CRUCIBLE WAREHOUSE SERVICE

Crucible Steel Company of America

General Sales Offices, Oliver Building, Pittsburgh, Pa. Branch Offices and Warehouses: Atlanta • Baltimore • Boston • Buffalo • Charlotte • Chicago Cincinnati • Cleveland • Dayton • Denver • Detroit • Houston • Indianapolis • Los Angeles • Milwaukee • Newark • New Haven • New York • Philadelphia Pittsburgh • Providence • Rockford • San Francisco • Seattle • Springfield, Mass. • St. Louis • St. Paul • Syracuse • Toronto, Ont.



MASSACRE IN THE CORNFIELD

UNDERGROUND PESTS are lying in ambush to massacre young corn. By cutting off the roots, they prevent the growing plant from getting proper nourishment, and the first stiff breeze that comes along will topple the stalks. Expensive replanting in the spring or difficult harvesting in the fall is the result.

But aldrin, a powerful insecticide, is "heap bad medicine" for soil insects such as corn rootworms and white grubs. The massacre in the cornfield now is the way *farmers* want it.

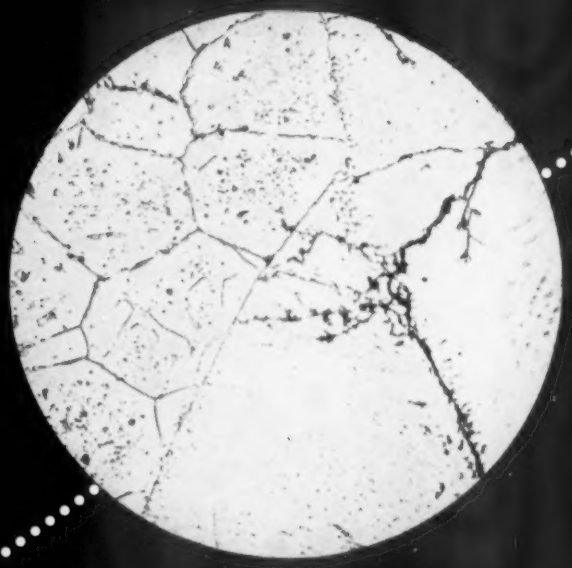
Aldrin is another example of the many Shell Chemical advances which improve agricultural and industrial products.

Shell Chemical Corporation

Chemical Partner of Industry and Agriculture

NEW YORK

Here's a better solution to a tough Corrosion Problem



Carpenter 7Mo Stainless Tubing & Pipe

The corrosion-inviting cracks in the right-hand section of the photomicrograph above end abruptly as they near the center of the picture . . . and that quick ending may help you find a quick ending to stress corrosion cracking problems.

The picture is Carpenter 7Mo stainless pipe (left) welded to a Type 316 fitting. It is still unaffected by the stress corrosion cracking that has destroyed the usefulness of the fitting. The pipe outlasted three such fittings before the photomicrograph was made.

The stout resistance of Carpenter 7Mo to stress corrosion cracking, even in the presence of chlorides or other caustic and sulphite solutions, is coupled with excellent resistance to general corrosion and pitting. It has been used as a "problem solver" in food and chemical processing plants, pulp mills, petroleum refineries and other places. There may be a profitable place for it in your operation. We'll be glad to work with you, aid you in investigation of your problems and a possible 7Mo solution.

MEMBER

The Carpenter Steel Company, Alloy Tube Division, Union, N. J.

Export Dept.: The Carpenter Steel Co., Port Washington, N. Y.—"CARSTEELCO"

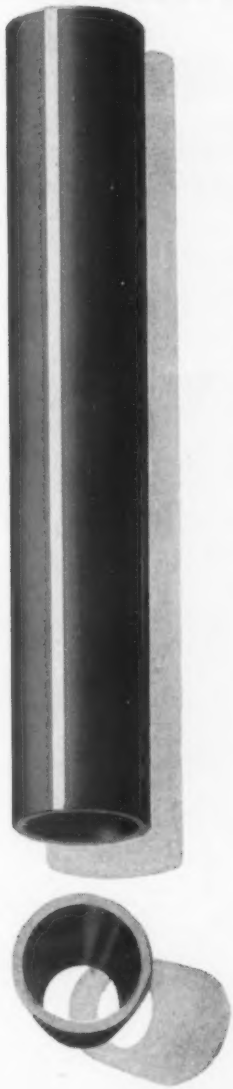


Write for your copy of the Carpenter 7Mo Technical Bulletin containing comprehensive data.

Carpenter

Stainless Tubing & Pipe

For More Information Circle No. 562 on Inquiry Card—Page 17



Be Emphatic!

Specify GM STEEL TUBING By Rochester Products

GM STEEL TUBING BY ROCHESTER PRODUCTS, DIVISION OF GENERAL MOTORS, ROCHESTER, N.Y.

For More Information Circle No. 567 on Inquiry Card—Page 17

For Economy, Design Freedom,



REYNOLDS ALUMINUM

BLANKING • EMBOSSING • STAMPING • DRAWING • RIVETING • FORMING



On the back of each color TV viewing screen are more than one million phosphor dots (19" screen) grouped in uniform patterns of red, green and blue. Electron beams registered with each dot are shot at these phosphors—the intensity determining the dominating color.

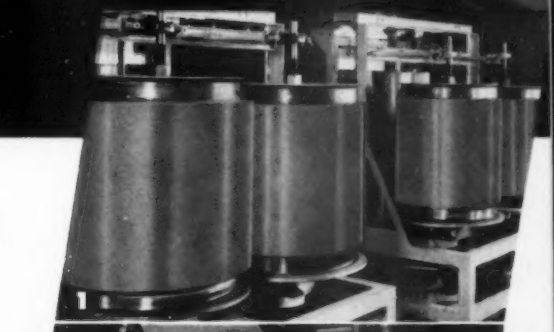
Directly behind the screen in each tube is a Cupro Nickel shadow mask containing more than 400,000 holes. Each hole is registered exactly with its group of phosphor dots on the screen and with the electron beam—the mask controls the register of color—keeps the image sharp —the color true.

Color TV came to ANACONDA

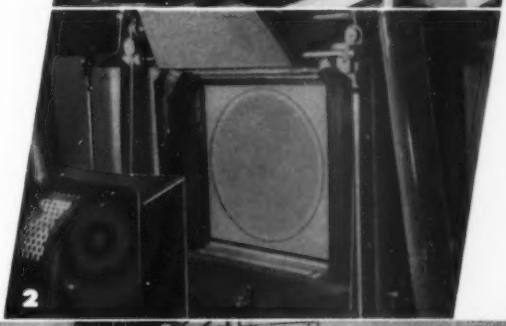
When the television industry needed a shadow mask to control electron beams in the color tube, Buckbee Mears Company, photoengravers of St. Paul, Minnesota, produced it. When they needed thin strip metal in which 2500 perfect holes per square inch could be etched, Anaconda produced it.

When color TV came to Anaconda, we developed a new alloy, 6% Cupro Nickel, with such uniform quality, structure and thickness (0.0075") that the microscopic holes could be etched without flaw. The new alloy also has the strength and malleability to take forming without distortion of the dot structure, and functions in a color tube without contaminating the vacuum.

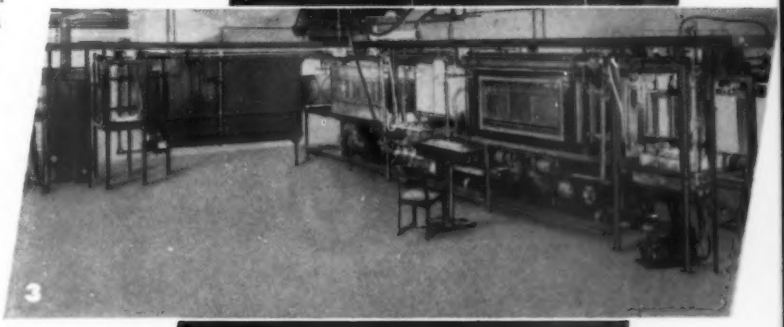
Again, a copper alloy has solved a difficult problem. Perhaps yours can be made easier through Anaconda research and development. The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Limited, New Toronto, Ontario.



1



2



3



4

1 Rolls of the Cupro Nickel strip entering coating machine to be sensitized for photographic printing.

2 Camera printing dot pattern on the sensitized Cupro Nickel strip.

3 Printed Cupro Nickel strip at right entering etching machine where acid baths plus washing and rinsing operations produce finished mask.

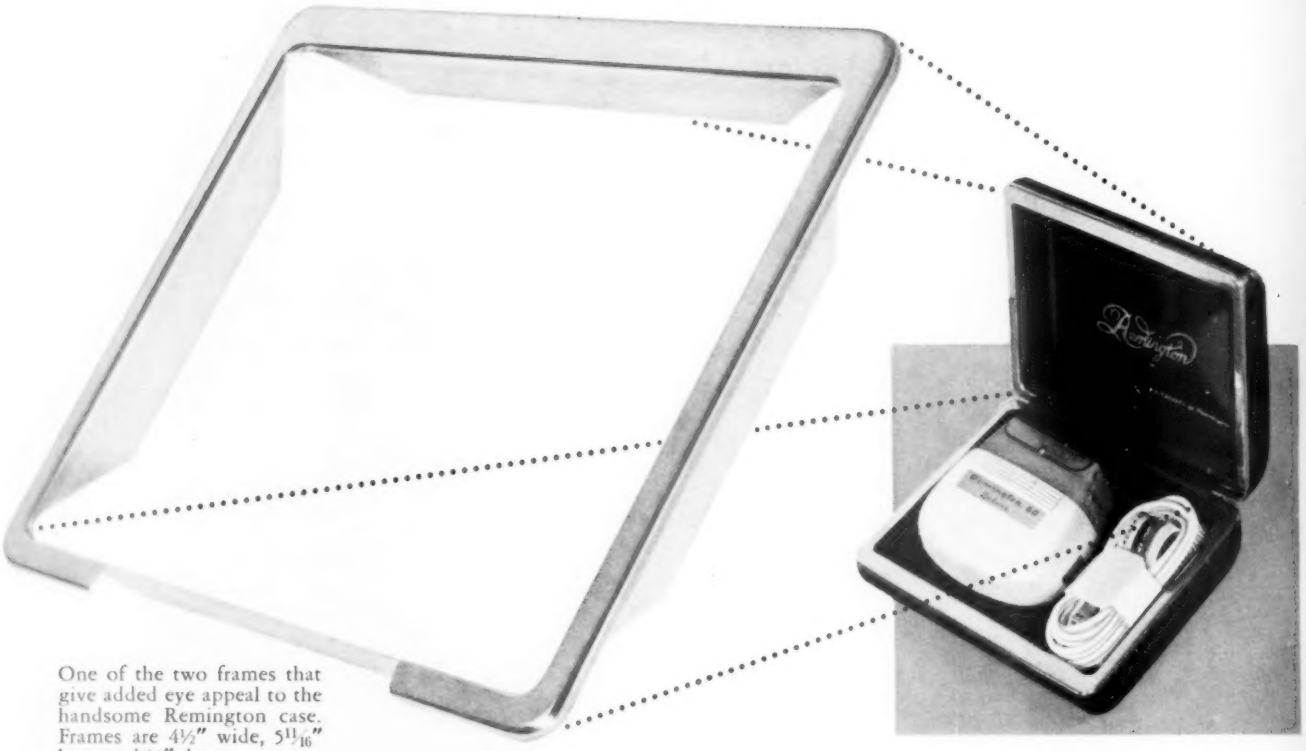
4 Each 19" shadow mask has more than 400,000 holes, size .010±.0005. Several areas of screen are inspected electronically to check hole size.

ANACONDA the name to remember in

COPPER • BRASS • BRONZE

Rejects dropped from 11% to 1%

when Farrington switched to Formbrite for frames of Remington Shaver case



One of the two frames that give added eye appeal to the handsome Remington case. Frames are 4½" wide, $5\frac{11}{16}$" long and ½" deep.

Formbrite* fine-grain drawing brass is harder, stronger, springier...often polishes in half the time



Press operator blanks frames for the Remington case out of 6" x .0126" Formbrite drawing brass strip.

Each day, thousands of these brass frames for the Remington-60 Deluxe Shaver case are made by Farrington Manufacturing Company of Boston. Using ordinary brass, rejects *after polishing* were running at the rate of 11%.

Then Farrington switched to Formbrite. Rejects dropped immediately to less than 1% . . . and with far less polishing Farrington now gets the best finish they've ever seen. And that's important because the Remington case helps sell the shaver.

You'll find Formbrite surprisingly ductile . . . it's readily stamped, formed, drawn and embossed. Yet with all its advantages, it costs no more than ordinary drawing brass. We'd like you to know this cost-saving metal better. May we send you descriptive literature (ask for booklet B-39)? A free sample to try in your own shop? Or have a representative call? Simply write to *The American Brass Company, General Offices, Waterbury 20, Conn.* In Canada: *Anaconda American Brass Ltd., New Toronto, Ontario.*

*Reg. U. S. Pat. Off

6577



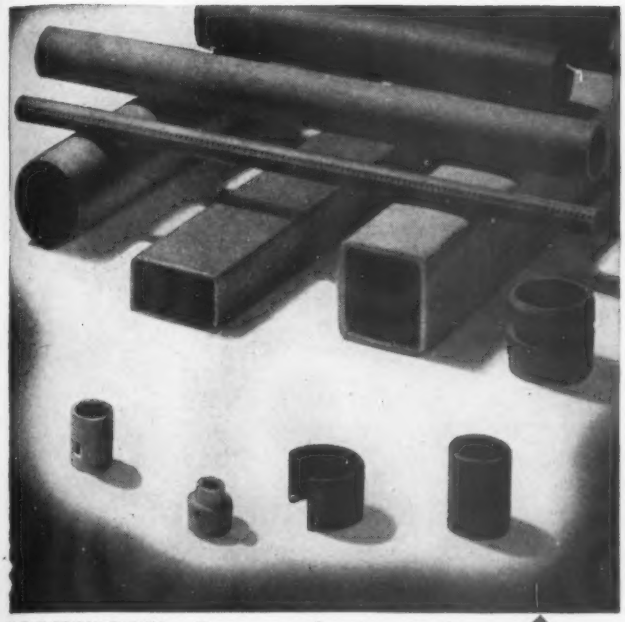
Frames are set in fixture for finishing operation on this automatic, three-station polishing machine. Bright, lustrous finish is obtained in one pass through the machine.

Formbrite

FINE-GRAIN DRAWING BRASS

AN ANACONDA® PRODUCT

made by The American Brass Company



C-D-F SPIRAL TUBING offers many advantages to the cost-conscious design engineer and purchasing agent. It is low-cost, moisture-resistant, high-strength, and easy to fabricate. It has sufficiently low dielectric loss properties and good dielectric strength for many applications.

New C-D-F Plastic Spiral Tubing reduces unit costs, improves products

Using C-D-F's new Spiral Tubing is a way of saving money in buying electronic insulation . . . without lowering the electrical and mechanical characteristics of the part required. This special tubing is a high-strength plastic made from paper or vulcanized fibre that is spirally wound. It is available in two basic forms in various grades: (1) as plain untreated tubing. (2) as impregnated tubing containing various types of thermosetting insulating varnishes.

BUY ONLY THE PROPERTIES YOU NEED

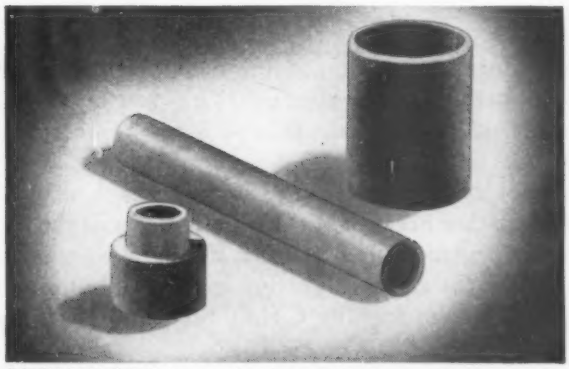
Spiral Tubing can be used to replace rolled or molded laminated phenolic tubing in many cases. As the degree of moisture resistance and mechanical strength is established during the manufacturing process, you specify . . . and buy . . . only those properties required for the application. C-D-F also offers complete designing, machining and assembly. You can get finished components, or random length tubing, with fast deliveries. Write for Technical Folder ST-53 and samples, after checking our catalog in Sweet's Design File. Call the C-D-F sales engineer listed there—he can save you time and money immediately with C-D-F Spiral Tubing!

CDF

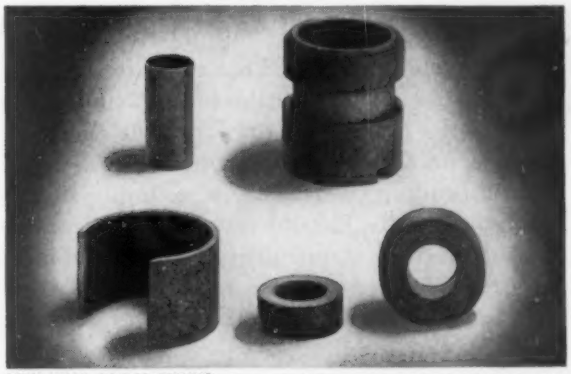
Continental-Diamond Fibre

CONTINENTAL-DIAMOND FIBRE COMPANY

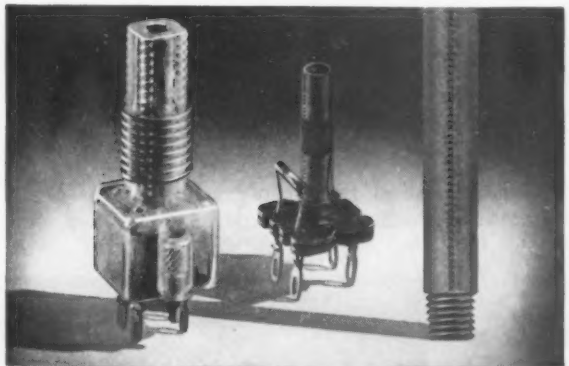
NEWARK 41, DELAWARE



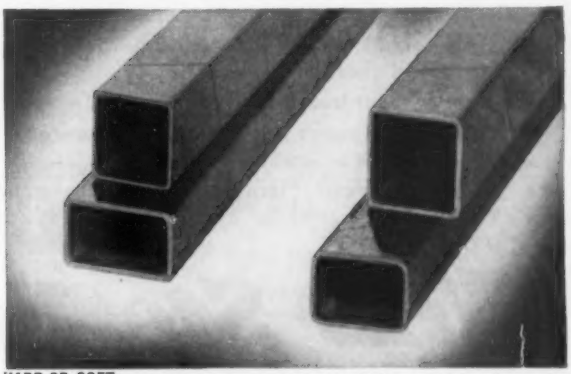
A VERY HARD TUBE is supplied in C-D-F Grade 6A. The parts shown have maximum mechanical strength, lowest water absorption rate under immersion conditions and most stable dielectric loss properties. Fine for bushings and cores.



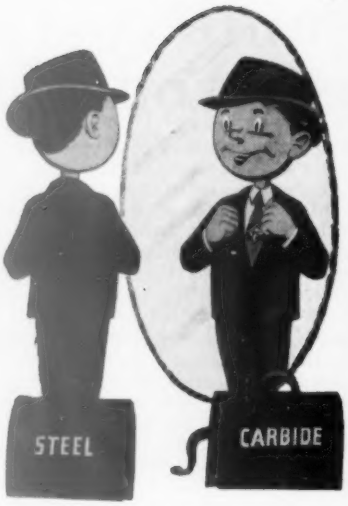
THIN-WALL SPIRAL TUBING has good concentricity and is tough. Note thin wall construction, cleanness of machining, variety of shapes. C-D-F Spiral Tubing is easily machined, formed, punched. Made in many grades for special applications.



NEW CONSTANT TORQUE TUBING, for permeability tuning with iron cores, features exact internal threading with three point suspension of the core to prevent binding . . . *no* external embossing to lower dielectric strength. Write for samples.



HARD OR SOFT, square or rectangular coil-form tubing is made for solenoid and transformer applications. Sides are straight with minimum gap in paper winding. Supplied in soft, varnished kraft, or hard, rigid tubing.



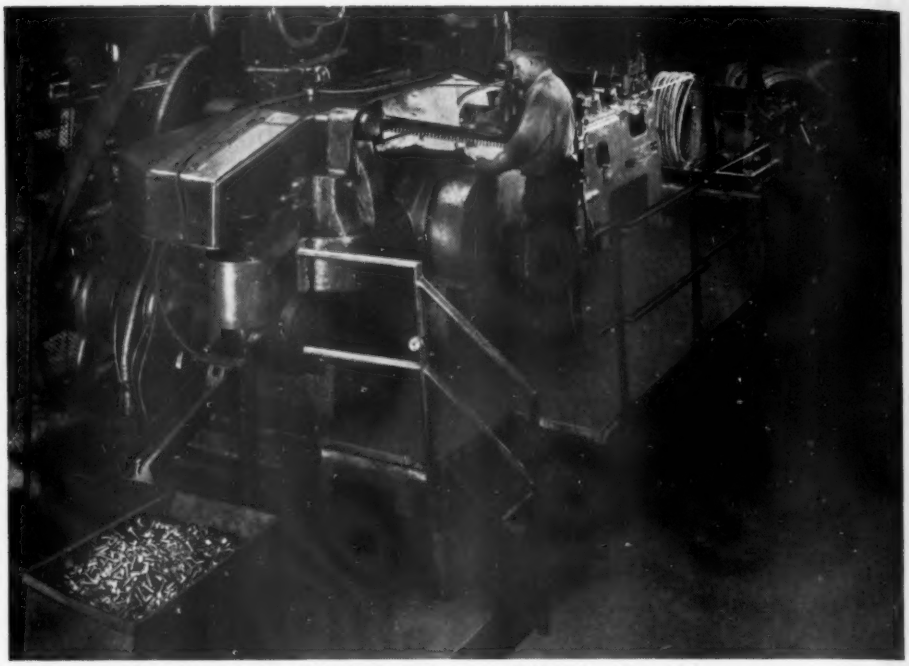


Photo shows automatic bolt maker. Courtesy of Oliver Iron & Steel Corporation.

Mr. Tooley Says:

"It takes two to make a bargain"

How right!

In the field of tools and tooling materials for shaping, forming and removal of metal, Firth Sterling occupies the unique position of supplying *both* steels and carbides to do your job. Thus you *are* always assured of a *bargain* . . . the just-right selection from alternative materials, offered *without bias* from a single source of complete shop tooling.

Cold heading operations, for example, illustrate the point. Either steel or carbide, or both, may be used successfully. But one may have an advantage over the other because of the requirements of the job . . . such factors as quantity of product, geometric design, desired finish, material used and tolerances required. We have *both* steel and carbide. We can recommend the exactly right one, or both, if indicated! Yes, for cold heading "it takes two to make a bargain" . . . Firth Sterling C.H.Q. Steel and Firthaloy Carbide Nibs.

C.H.Q. COLD HEADING QUALITY STEEL

- Controlled hardenability by size
- Controlled carbon content by size
- Special cold heading inspection for good centers
- Safety in heat treatment
- Superior toughness and fatigue resistance

FIRTHALOY CARBIDE NIBS

- Controlled quality
- Made specifically for cold heading applications
- Toughest grade of sintered carbide
- Maximum impact and fatigue resistance
- Good machinability

Your Firth Sterling representative will recommend the best grade of steel or carbide for your applications and product requirements.

R-303

Firth Sterling

—INC—

GENERAL OFFICES: 3113 FORBES ST., PITTSBURGH 30, PA.

OFFICES AND WAREHOUSES*: BIRMINGHAM CHICAGO* CLEVELAND DAYTON DETROIT* HARTFORD* HOUSTON LOS ANGELES* NEW YORK PHILADELPHIA PITTSBURGH WASHINGTON WESTFIELD, N.J.

PRODUCTS OF FIRTH STERLING METALLURGY

High Speed Steels
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Sintered Tungsten Carbides
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Chromium Carbides
High Temperature Cermets
Zirconium

CALL YOUR FIRTH STERLING DISTRICT OFFICE OR DISTRIBUTOR. ASK MR. TOOLEY.

For More Information Circle No. 767 on Inquiry Card—Page 17

TELNIC® BRONZE!



Works hot, works cold... machines easily!

Telnic Bronze, developed and patented by Chase, might very well be called the "all purpose" alloy. It has *excellent* machinability, hot and cold workability, high strength and conductivity, high fatigue strength and superior corrosion resistance.

Chase Telnic Bronze is available in round or hexagonal rod. Find out more about this amazing alloy—check the coupon for Chase's free Telnic Bronze booklet.

GET FORGINGS FROM CHASE!
Non-ferrous forgings of all types made to your specifications. Write for details.

Chase®
BRASS & COPPER CO.
WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION
The Nation's Headquarters for Brass & Copper

Albany†	Chicago	Detroit	Los Angeles	New York	St. Louis
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Boston	Dallas	Indianapolis	Newark	Providence	Waterbury
Charlotte†	Denver†	Kansas City, Mo.	New Orleans	Rochester†	(†sales office only)

FREE

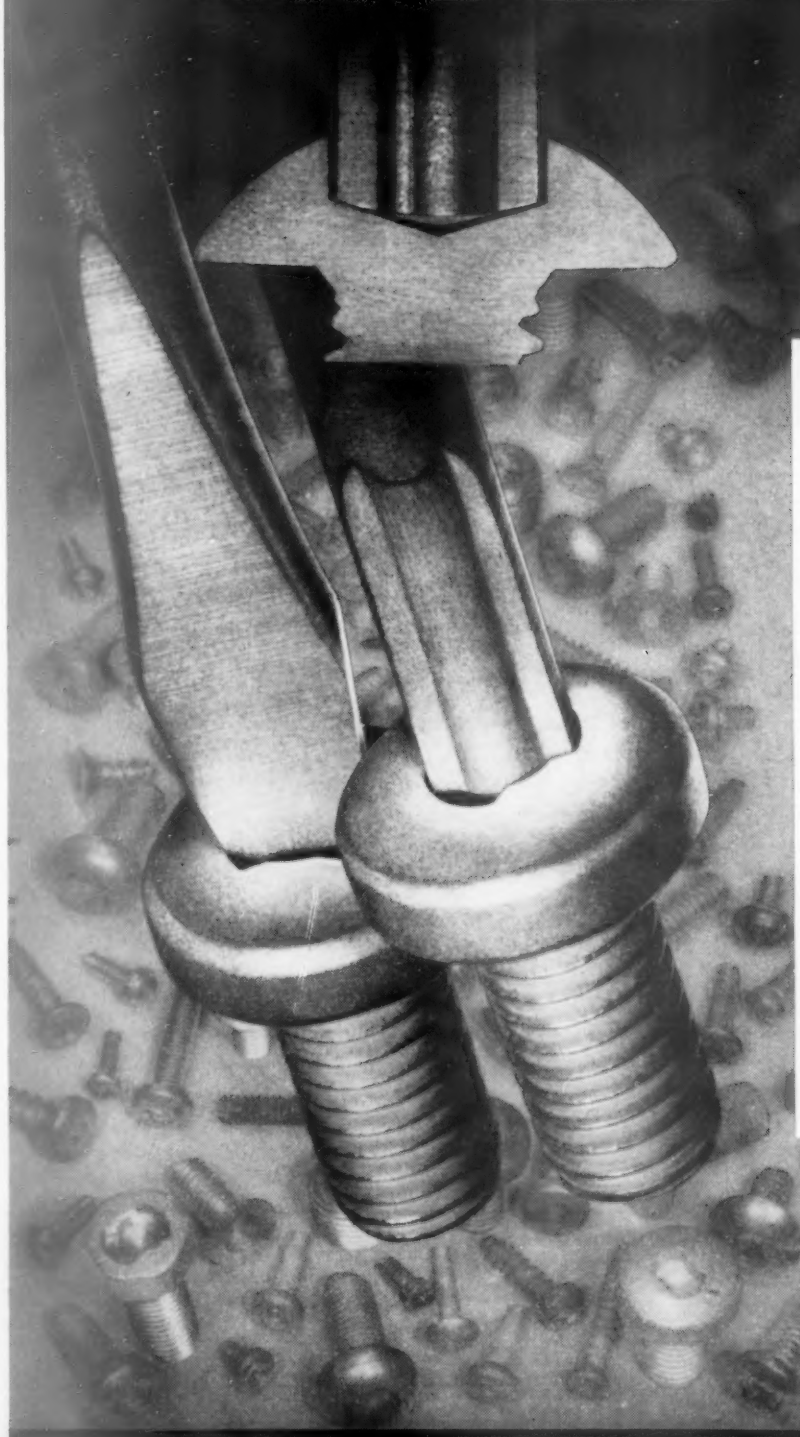
Chase Brass & Copper Co.
Waterbury 20, Connecticut
Dept. Purc. 655

Gentlemen:
Please send me your free Telnic Bronze booklet.

Name_____
Position_____
Firm_____
Street_____
City_____ State_____

For More Information Circle No. 577 on Inquiry Card—Page 17

UNITED
CLUTCH HEAD® SCREWS



CLUTCH HEAD® screws have proved their merit under various assembly conditions in many industries. The straight wall recess eliminates troublesome "ride-outs." The lock-on feature speeds up assembly in hard-to-get-at places, and the longer bit life reduces driver costs. It will pay you to analyze Clutch Head screws for your assemblies.

While the Type A bit was designed to give you the greatest ease in repair work, a common screw driver, of the proper width to engage the clutch recess, will easily unscrew or seat the screw.

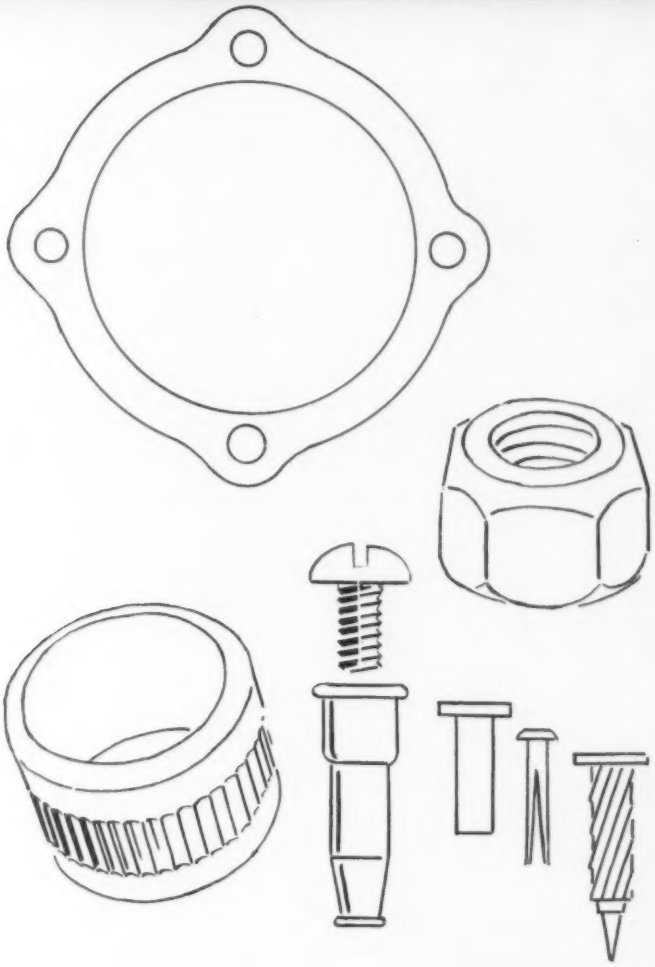
Write for
Clutch Head Brochure

SCREWS · NUTS · WASHERS
CLUTCH HEAD SCREWS
STAMPINGS

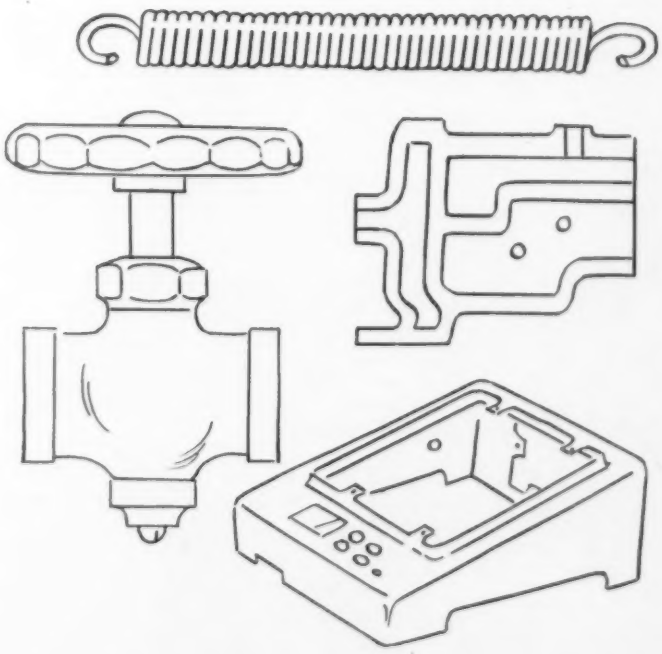
® REG. U.S. PAT. OFF.

United Screw and Bolt Corporation
Chicago 8 Cleveland 2 New York 7

For More Information Circle No. 576 on Inquiry Card—Page 17



COMPONENT PARTS

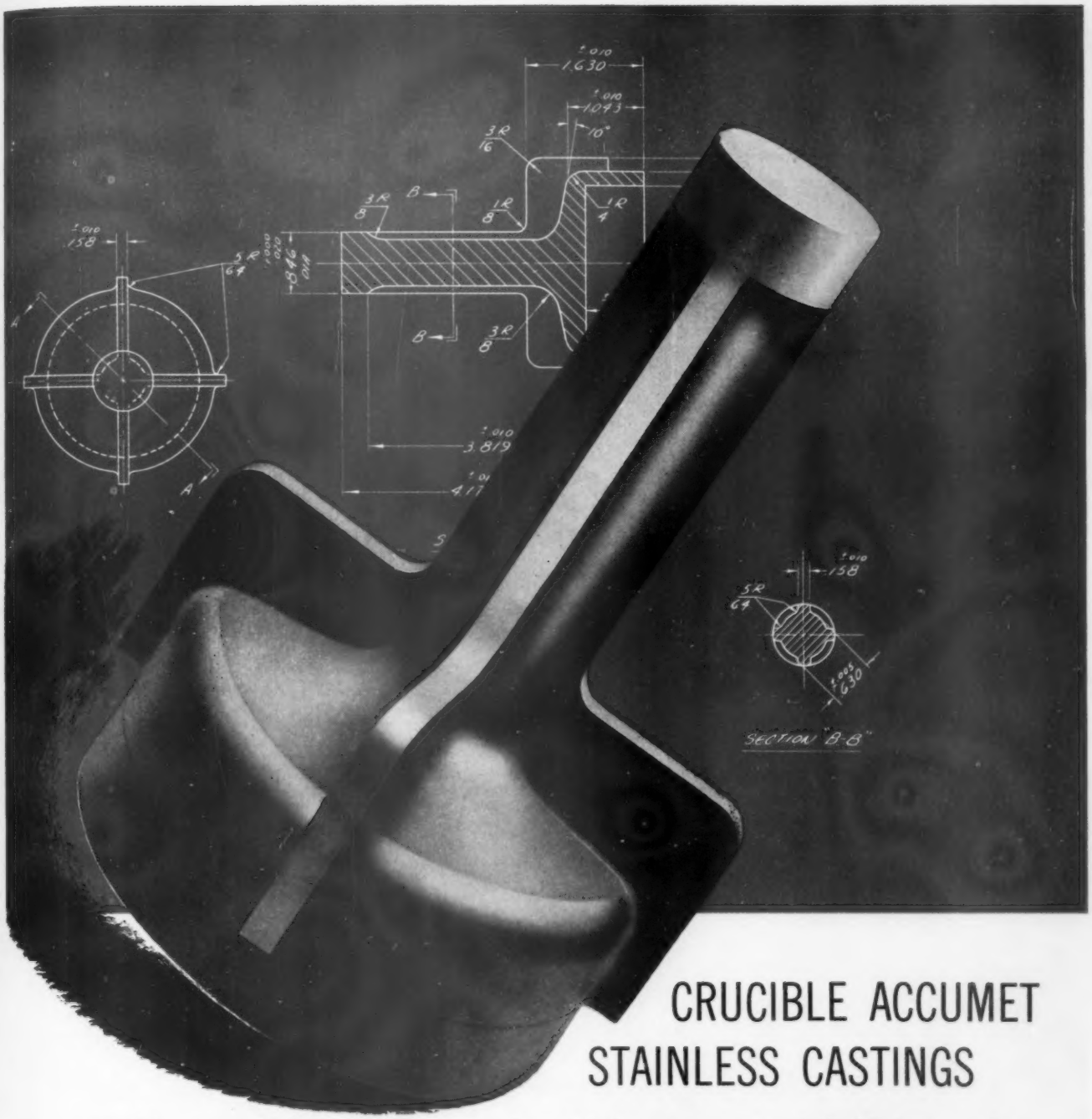




Check Your
COMPONENT PARTS
VQ*

	YES	NO
1. Do we select suppliers with the most modern and efficient equipment so that we can get the benefits of low-cost production?		
2. Are we now making parts that can be bought at lower cost from suppliers who are specialists?		
3. Do we actively solicit suggestions from suppliers on methods of reducing costs?		
4. Do we make full use of legitimate competition in our parts buying?		
5. Have we considered making long range commitments for critical parts in order to permit suppliers to invest in equipment that can produce most economically?		
6. Do we have a parts standardization program?		
7. Do we buy parts, whenever possible, on blanket orders to keep administrative costs down?		
8. Do we keep abreast of changes in raw materials prices and make certain that declines are reflected in our parts prices?		
9. Do we understand the function of every part we buy; is price commensurate with function in every case?		
10. Do we know enough about how our parts are made to evaluate their worth?		
11. Do we periodically compare similar purchased parts, to see if we are getting the same relative value?		
12. Do we carefully analyze all price increases requested to make certain they are justified totally by cost and other legitimate factors?		
13. Do we keep abreast of improvements in manufacturing methods and make certain that increased productivity results in lower cost to us?		
14. When alternate methods of manufacture are available on a given part, do we make a thorough investigation to determine the lowest cost method?		
15. Do we completely investigate the advantages and disadvantages of buying components assembled instead of disassembled, or vice versa?		

*Value Quotient



CRUCIBLE ACCUMET STAINLESS CASTINGS

provide smoother surfaces . . . closer tolerances — cut finishing costs

Even intricately shaped parts, like this cream separator neck piece, can be used essentially as-cast when produced by the ACCUMET method. That's because ACCUMET casting employs hot molds with special inner linings. You get castings on which thin sections are minutely defined . . . and with exceptionally fine surface finish. *Costly finishing operations are practically eliminated.*

On this stainless steel part, for example, the only finishing operations necessary are drilling and tapping of the stem section, grinding flats on the bow end, and polishing.

To minimize finishing operations on your products, consider the advantages of ACCUMET precision investment castings. Let your Crucible representative show you how their close tolerances, fine finish, and physical and metallurgical accuracy can spell substantial savings for you. And — to see what information is available on these and other Crucible special steels, write for your free copy of the "Crucible Publication Catalog." *Crucible Steel Company of America, Henry W. Oliver Building, Pittsburgh 22, Pa.*

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

For More Information Circle No. 584 on Inquiry Card—Page 17

Can you guess what these American

A _____

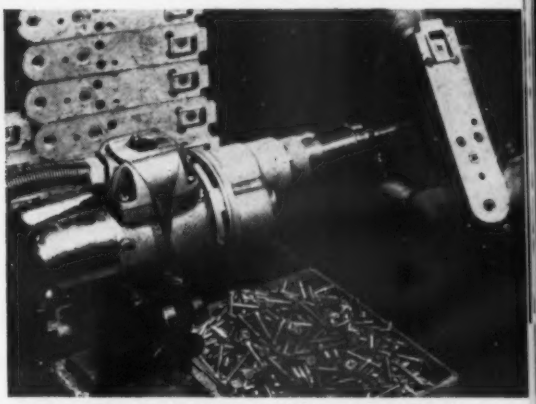




TEN IN THE TOP. 10 Phillips self-tapping screws hold top panel to the frame of the Fedders ¾ ton room air-conditioner. "We found employees on the assembly line are the best salesmen for Phillips screws," says the assistant plant manager. "Rapid driving of the screws is important to them because they are on piecework."



STEADY ON THE STABILIZER. Here is the final assembly of the top cover of a horizontal stabilizer at Republic Aviation. The purchasing agent said, "You can really foul it up with one of those speed guns if it slips out of the screw slot, but the Phillips type head helps to prevent slipping. It holds on to the driver bit much better than the old-type screw."



5,000 WINDOWS in U.N. Building, New York City, have Caldwell clock spring sash balances. "We depend on the worker's adjustment of the Phillips head screw to make the balance function perfectly," says Caldwell's production manager. "We now use two sizes of Phillips recessed-head screws . . . and have speeded assembly. Our power drivers are mounted horizontally, since we discovered the units are easier to move around than the drivers."

NEW DISCOVERIES IN ASSEMBLY

Many manufacturers in many fields are finding Phillips Cross-Recessed-Head Screws lead to better methods and results

Allmetal Screw Products Company, Inc. • American Screw Company • Atlantic Screw Works, Inc. • The Blake & Johnson Co. • Central Screw Company • Continental Screw Company • The Eagle Lock Company • Elco Tool and Screw Corporation • Great Lakes Screw Corporation • The H. M. Harper Co. • The Lamson & Sessions Company National Lock Company • The National Screw & Manufacturing Co. • Parker-Kalon Div. General American Transportation Corporation • Pheoll Manufacturing Company Rockford Screw Products Company • Scovill Manufacturing Company • Shakeproof Division Illinois Tool Works • The Southington Hardware Manufacturing Company Sterling Bolt Company • Universal Screw Company • Wales-Beech Corporation

MANUFACTURERS OF PHILLIPS CROSS-RECESSED-HEAD SCREWS

THE FASTENERS OF TODAY ... AND OF THE FUTURE

X marks the spot

... the mark of extra quality

YOU CAN'T BEAT GARRETT for SMALL PARTS and SERVICES



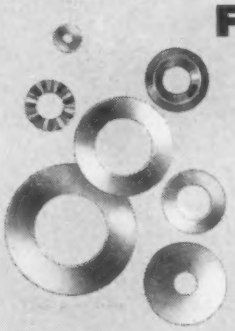
Whether they are small or medium size parts to regular specifications or special sizes and finishes . . . Garrett can give you quick deliveries. Garrett's stock of billions of parts make most deliveries possible from stock. Garrett's three modern plants equipped with the most up-to-date, precision automatic machines provide the fastest service on parts to your special specifications.

SPRING LOCK WASHERS



Complete line of high quality spring lock washers to ASA and SAE specifications, plus many special types . . . wide choice of metals plated to your requirements.

FLAT WASHERS



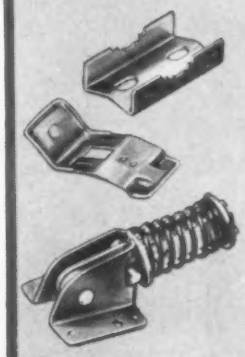
Fast delivery from the most complete line of washers in the world. Precision made in thousands of different sizes and types—all standard and many semi-standard sizes. Ready for delivery from stock to you.

HOSE CLAMPS



Aircraft AN 737 Stainless steel radial type. Multi-Clamp (QS100 & AN 748) worm type screw hose clamp. Auto-Seal, the inexpensive high quality hose clamp.

STAMPINGS



Quick deliveries on small and medium stampings made to your specifications on high-speed precision production presses. Finished, tumbled and plated to your specifications.

Write today for the Garrett catalog and technical data on these products.

MANUFACTURED BY

Garrett
OF PHILADELPHIA

GEORGE K. GARRETT COMPANY, INC. PHILA. 34, PA.

For More Information Circle No. 593 on Inquiry Card—Page 17

We put Hydraulic Cylinders on a reducing diet



RESULT:

The New VICKERS® "Compact" HYDRAULIC CYLINDERS

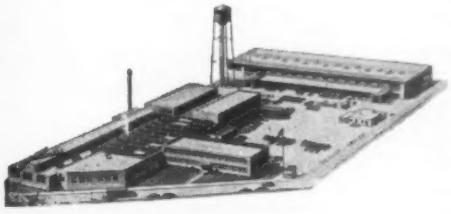


For 2000 PSI Working Pressure

Everybody agreed that hydraulic cylinders were just too fat . . . took up too much space. So our engineers put them on a reducing diet. The result . . . these slim, powerful, "Compact" cylinders fit and work in spaces where the old type could not. It is part of Vickers long-time program of continuous improvement.

Among their many other features are: Multiple port positions. Spring-loaded synthetic-impregnated leather rod seal compensates for wear, assures long service. Piston seals are improved cup type. Tie rods are high tensile alloy steel. Adjustable integral hydraulic cushions are available. Comply with JIC standards. Conservatively rated for maximum working pressure of 2,000 psi. For further information, see Bulletin 54-68.

Waterbury Tool Division of Vickers Incorporated where "Compact" Cylinders are manufactured.



Ask for New Bulletin 54-68

VICKERS Incorporated

DIVISION OF SPERRY CORPORATION

1566 OAKMAN BLVD. • DETROIT 32, MICH.

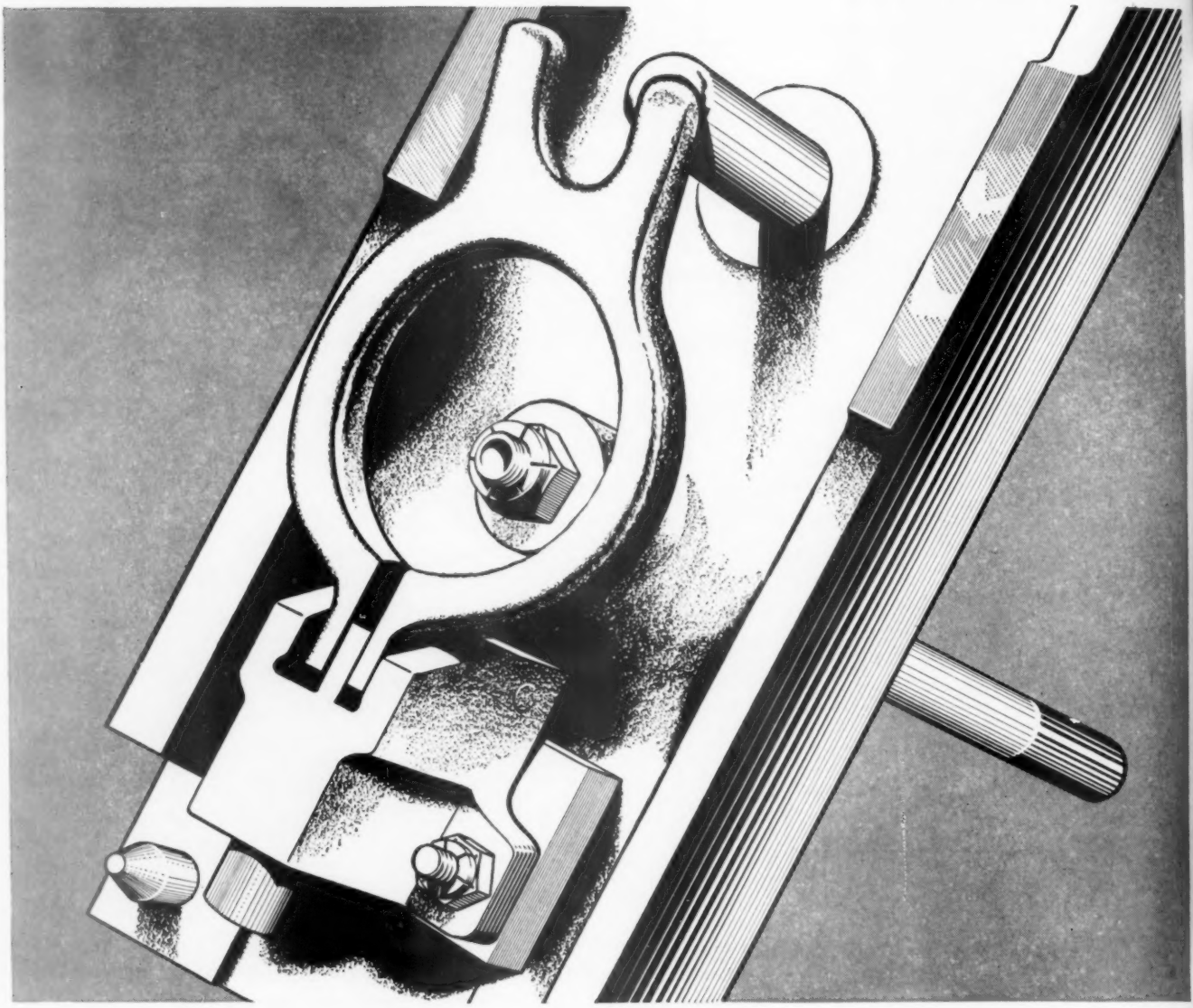
Application Engineering Offices: • ATLANTA • CHICAGO AREA (Brookfield) • CINCINNATI CLEVELAND • DETROIT • HOUSTON • LOS ANGELES AREA (El Segundo) • MINNEAPOLIS • NEW YORK AREA (Summit, N.J.) • PHILADELPHIA AREA (Media) • PITTSBURGH AREA (Mt. Lebanon) • ROCHESTER • ROCKFORD • SAN FRANCISCO AREA (Berkeley) • SEATTLE • ST. LOUIS • TULSA WASHINGTON • WORCESTER

6950

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

For More Information Circle No. 596 on Inquiry Card—Page 17

FLEXLOC AT WORK



MORE AND MORE FLEXLOC LOCKNUTS are being used on assemblies where dependable locking is essential to the operating efficiency of the equipment. This stationary spindle is a good example of the difficult jobs FLEXLOC locknuts are doing throughout industry.

FLEXLOCS were put on this unit after a number of other locknuts had failed to keep the spindles tight. Even the high humidity, extreme vibration, and presence of lint and grease have not loosened the FLEXLOCS.

FLEXLOC Self-Locking Nuts—one piece, all metal—are available in a full range of sizes in any quantity. Standard FLEXLOCS are stocked by leading industrial distributors everywhere. Write for Bulletin 866 and samples. STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.



DO YOU KNOW? Standard FLEXLOCS smooth off rough bolt threads. The locking threads on all-metal FLEXLOCS are not chewed up when used on rough bolts.

Standard FLEXLOCS lock securely on bolts varying in diameter tolerances. The all-metal, resilient locking sections of the nut accommodate themselves to the diameter tolerances.

Standard FLEXLOCS are one piece, all metal. They are not affected by temperatures to 550°F. Nuts lacking these features have a more restricted temperature range.

Standard FLEXLOCS lock securely—stopped or seated—when 1½ threads of a standard bolt are past the top of the nut.

Standard FLEXLOCS are not affected by moisture, oil, dirt or grit. They lock efficiently under all conditions, regardless of the vibration encountered.

FLEXLOC®
LOCKNUT DIVISION
sps
JENKINTOWN PENNSYLVANIA

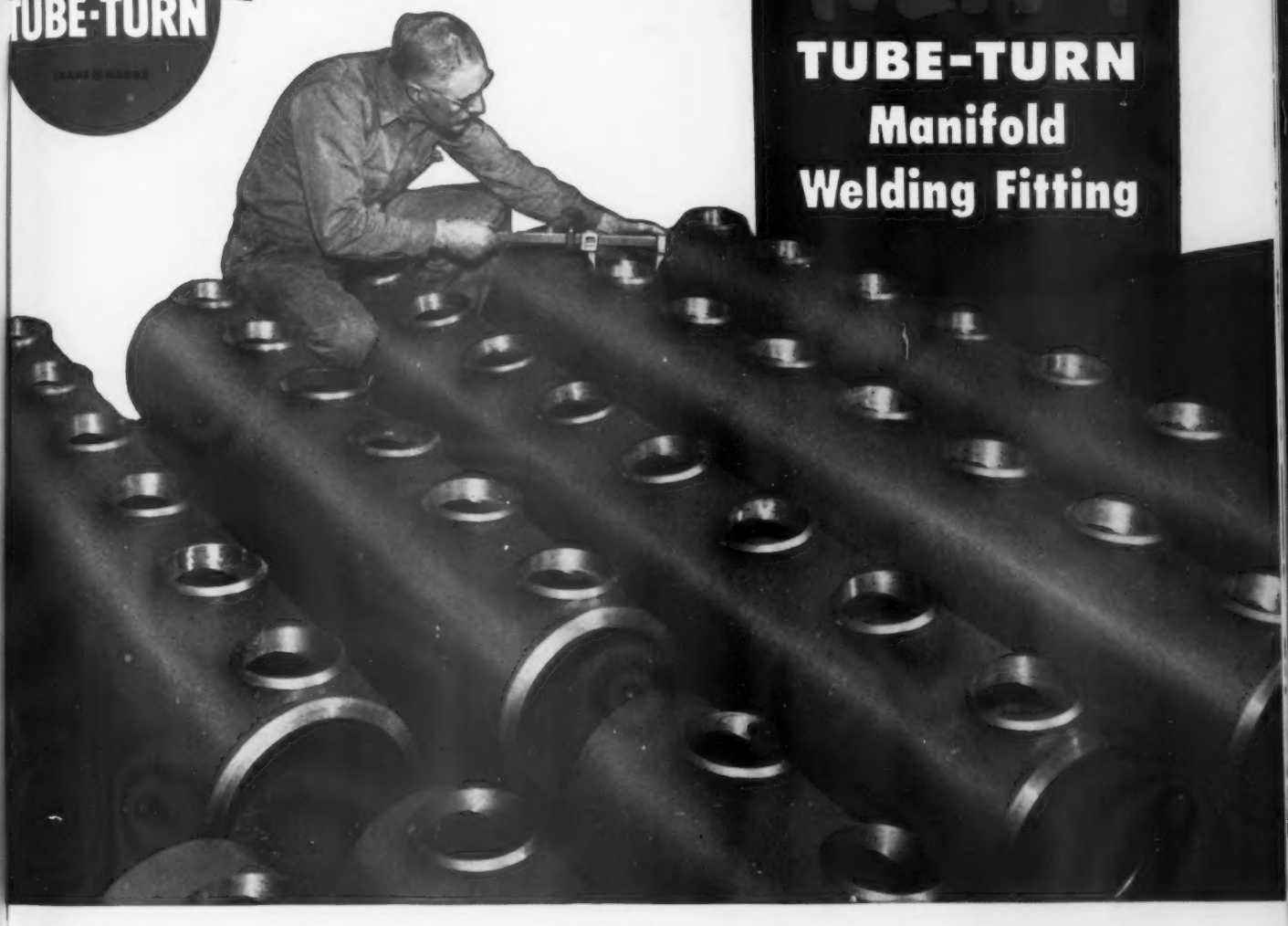
For More Information Circle No. 597 on Inquiry Card—Page 17

tt TUBE-TURN

Remember the trademarks "tt" and "TUBE-TURN" are applicable only to products of TUBE TURNS.

NEW!

TUBE-TURN Manifold Welding Fitting

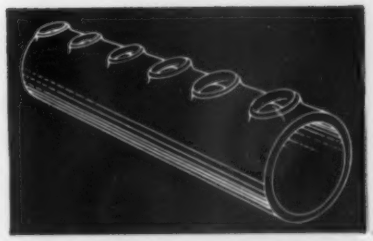


simplifies piping construction, reduces costs

TUBE TURNS now offers custom-made Manifold Welding Fittings with size, wall thickness, and number of outlets as required by your service conditions. These manifold fittings are available in all commercial metals and alloys.

Use of TUBE-TURN* Manifold Welding Fittings provides stronger and safer outlet connections than are possible when pads and saddles are employed. This new fitting makes possible greater economy and speed of construction in many types of service. It is particularly useful when outlets are smaller than one-half the run pipe diameter, when they are extremely close together, or when they must vary in size.

This new addition to Tube Turns' line enables you to "specify TUBE-TURN" for all your tee and manifold fitting requirements. For prompt, helpful service, get in touch with your Tube Turns' Distributor. You'll find one in every principal city.



The new TUBE-TURN Manifold Welding Fitting . . . superior to pad and saddle construction . . . easy to install . . . dependable in service.

TUBE-TURN Welding Fittings and Flanges are made in U.S.A.
They meet *all* U. S. piping code specifications



*"TUBE-TURN" and "tt" Reg. U.S. Pat. Off.

TUBE TURNS

LOUISVILLE 1, KENTUCKY

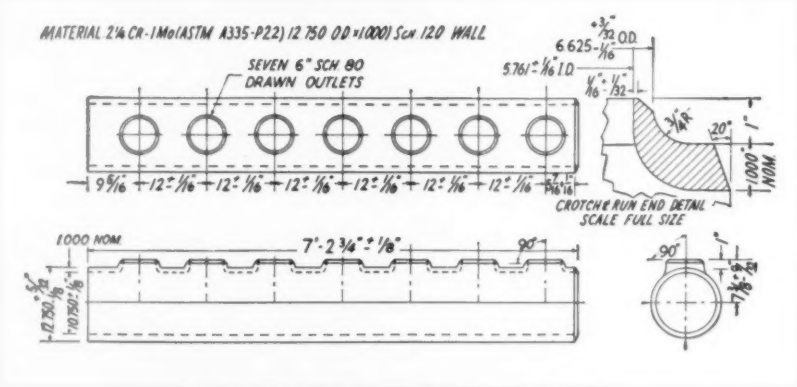
A Division of National Cylinder Gas Company

DISTRICT OFFICES: New York • Philadelphia • Pittsburgh • Cleveland • Detroit • Chicago • Denver • Los Angeles
San Francisco • Seattle • Atlanta • Tulsa • Houston • Dallas • Midland, Texas

APPLICATIONS

Why TUBE-TURN Manifold Welding Fittings give you safer service

In conventional pad and saddle construction, the transition to the side section of the branch is abrupt, creating stress concentration, often leading to failure. The TUBE-TURN* Manifold Welding Fitting with *integral extruded outlets,* is superior in strength. It provides a smooth transition from the pipe run to the smaller, thinner-walled outlets, and is thus better able to withstand cyclic stress from pressure or temperature changes.



12" Manifold with Seven 6" Outlets. Schedule 80.



TUBE-TURN Manifold Welding Fitting being in a measuring station of a large west coast ga

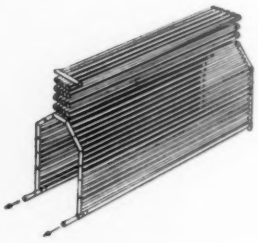
CODE APPROVED

TUBE-TURN Manifold Welding Fittings are in full accordance with the latest recommendations of ASA B31.1 Subcommittee No. 8.

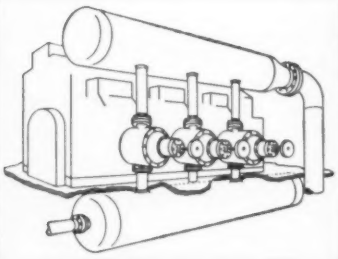
TUBE-TURN Manifold Welding Fittings comply with the requirements of ASA B16.9 and ASTM A234 covering the design and manufacture of butt welding fittings.

TYPICAL APPLICATIONS

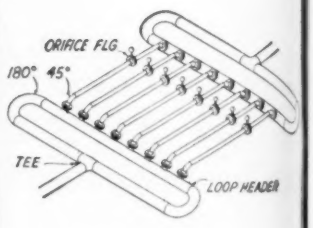
TUBE TURN Manifold Welding Fittings can be used in virtually all types of major piping systems. Tube Turns' Sales Development Department will be glad to assist you in application problems.



Pipe Still or Charge Heater



Compressor Station Suction and Discharge Headers



Meter Run Loop Header

MANIFOLD DATA

Send for bulletin covering Manifold Welding Fitting Applications. Just mail the coupon.

TUBE TURNS, Dept. R-3
224 East Broadway, Louisville 1, Kentucky

Please send bulletin on new Manifold Welding Fittings.

Company Name _____

Company Address _____

City _____ *Zone* ____ *State* _____

Your Name _____

Position _____



DISTRICT OFFICES

New York	Los Angeles
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Midland, Texas

*"TUBE-TURN" and "tt" Reg. U. S. Pat. Off.

TUBE TURNS

A DIVISION OF NATIONAL CYLINDER GAS COMPANY

LOUISVILLE 1, KENTUCKY



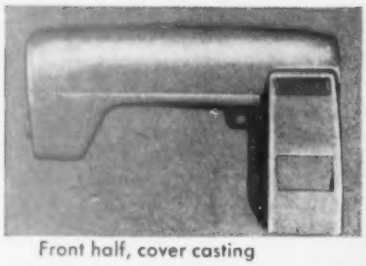
Standard symbols for **PRECISION**

A "mike" and an Allen Key keep steady company wherever precision measurements and precision adjustments go hand in hand . . . and where positive locking and vibration-free performance are important to maintaining precision.

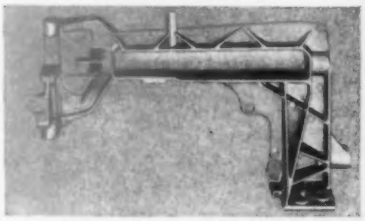
Look for the First Name in precision screws at the Industrial Distributor who stands first in *his* field in your locality. He has the stock, the experience, and a wealth of specific information on applications for precision fastenings that you will find invaluable.



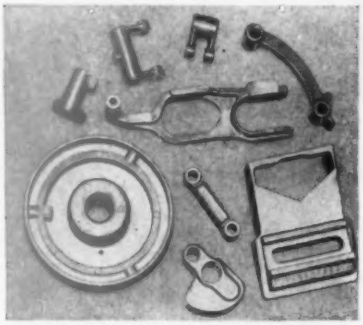
DIE CASTING REPORT



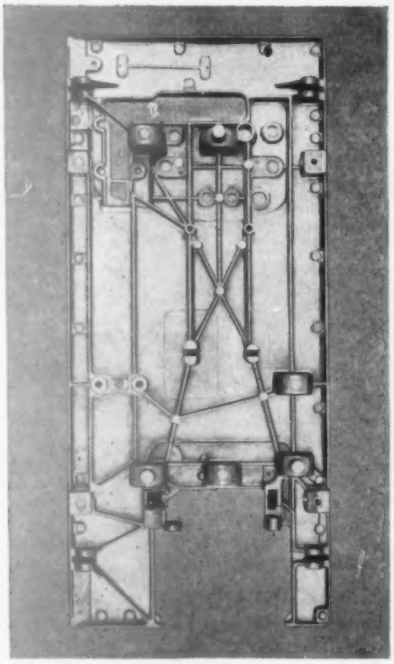
Front half, cover casting



Heavily ribbed main frame



Aluminum and zinc components



Intricate die-cast base



Die-casting helps achieve simplicity of design

New Materials and Methods plus Automotive Design Thinking . . .

Kicked off mass production of revolutionary portable sewing machine

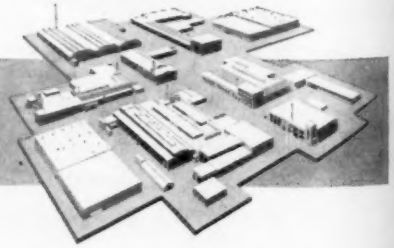
Automotive design thinking contributed considerably to the development of a sewing machine now being produced by the New Process Gear Corp. of Syracuse, N. Y. Faced with a customer request to build a new portable, New Process engineers discarded 50 years of standard construction methods and decided to eliminate cast iron, minimize stampings, and make maximum use of aluminum and zinc die-castings. Thinking along automotive lines they designed 4 basic die-cast parts: a front and back cover (like an automobile body), a main frame and base (the chassis). Precision engineers worked closely with customer, suggesting additional ribbing and refinements to add strength and reduce weight.



PAY-OFF:

Sewing machine has clean functional lines, weighs 50% less than competitive models. Unit has 50 less parts. Gears are eliminated. Nylon cams and a positive chain drive achieve quieter, more positive operation. Machining and assembly time and costs are held to a minimum.

Creative engineering applied to aluminum, magnesium and zinc die-cast components can help you in planning a new product or part. The Precision team of design and metallurgical engineers can show you how to reduce weight, machine and shipping costs and simplify assembly. Write for the Precision story *"Die-Castings . . . Unlimited."* Address your request to: Precision Castings Co., Inc., 241 Walnut St., Fayetteville, N. Y.



PRECISION CASTINGS CO., INC.

World's largest independent producer: aluminum, magnesium and zinc die castings

FAYETTEVILLE, N. Y. — SYRACUSE, N. Y. — CORTLAND, N. Y. — NEW YORK, N. Y.
CHICAGO, ILL. — CLEVELAND, OHIO — KALAMAZOO, MICH.

For More Information Circle No. 578 on Inquiry Card—Page 17



"Amazing how little this **TORRINGTON NEEDLE BEARING** *costs!"*

Initial cost of the Torrington Needle Bearing is much less than that of any comparable anti-friction bearing. But economy in first cost is only the start of savings which accrue to users of the Needle Bearing.

Because of its unit construction and small size, housings and related members can be made smaller and lighter.

Ease of installation trims costs on the assembly line, too. Just a simple operation on an arbor press places the hardened outer shell of the Needle Bearing in the housing.

Throughout the life of the completed assembly, the Torrington Needle Bearing continues to pile up benefits. Low friction, high load capacity and retention of lubricants all contribute to the characteristically long service life of Needle Bearings.

For twenty years, our Engineering Department has helped designers and manufacturers throughout industry to adapt the unique advantages of the Needle Bearing to their products. Let us help you make the Needle Bearing "standard equipment" in yours.

See our new Needle Bearing Catalog in the 1955 Sweet's Product Design File —or write direct for Catalog No. 55.

THE TORRINGTON COMPANY
Torrington, Conn. • South Bend 21, Ind.

District Offices and Distributors in Principal Cities of United States and Canada

These features make the **TORRINGTON NEEDLE BEARING** *unique*

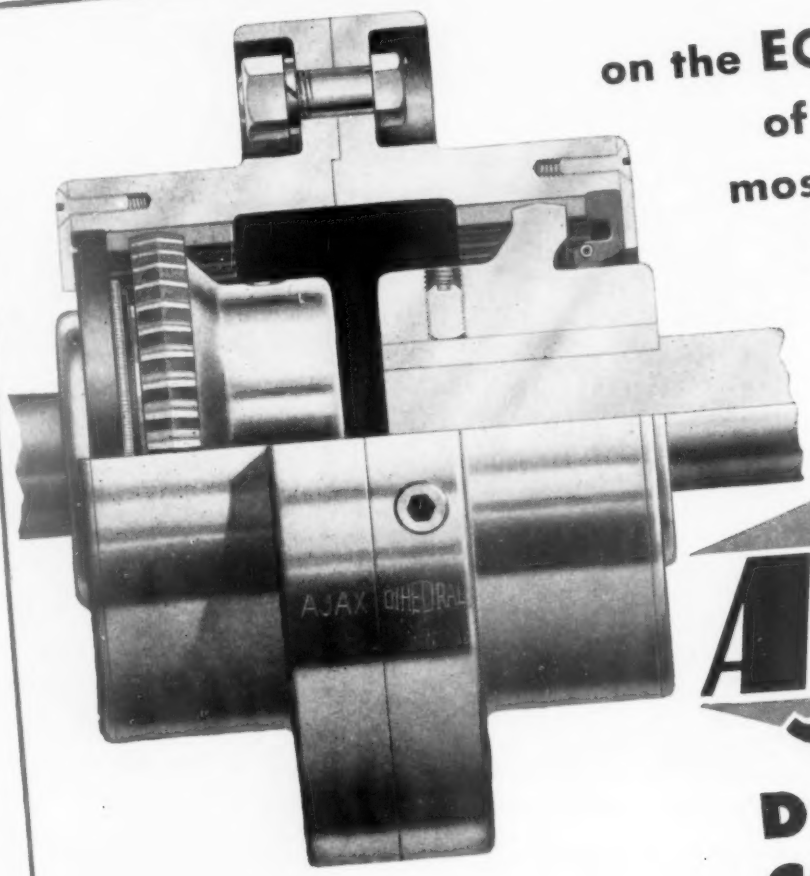
- low coefficient of starting and running friction
- full complement of rollers
- unequalled radial load capacity
- low unit cost
- long service life
- compactness and light weight
- runs directly on hardened shafts
- permits use of larger and stiffer shafts

TORRINGTON · NEEDLE BEARINGS

Needle • Spherical Roller • Tapered Roller • Cylindrical Roller • Ball • Needle Rollers

For More Information Circle No. 627 on Inquiry Card—Page 17

a Report to Top-Side Men



on the ECONOMY of America's most expensive coupling

AJAX

DIHEDRAL COUPLINGS

When you realize that all the horsepower goes through the coupling, you will realize that the most expensive coupling is the *least expensive.*

AJAX Dihedral Flexible Couplings overcome design, manufacturing, assembly and maintenance troubles which have been taken for granted as necessary evils for years!

AJAX Dihedral Couplings make it possible to design misalignment into heavy duty equipment as well as out.

Rolling mills, paper mills, earth moving equipment, oil drilling rigs, bridge cranes and many other difficult jobs are swinging over to AJAX Dihedral Couplings.

Phone your AJAX representative or write for case histories,—you will spark-plug some worthwhile thinking.

Also a complete line of Rubber-Bronze Bushed Couplings and Vibrating Conveyors.

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AJAX FLEXIBLE COUPLING CO. INC.
WESTFIELD, N. Y.

For More Information Circle No. 628 on Inquiry Card—Page 17

the MILFORD Riveter

TO SPEED INDUSTRY'S PROGRESS IN FASTENING

THE MILFORD RIVET AND MACHINE COMPANY, MILFORD, CONN. NORWALK, CAL. ELYRIA, OHIO AURORA, ILL. HATBORO, PA.

Purchasing Agents!

TAKE FULL ADVANTAGE OF TUBULAR RIVETS AND SPECIAL COLD-FORMED PARTS! YOU MAY SAVE 30% to 70%!

The vital, all-important challenge *every* manufacturer faces today is: "Cut costs or fall behind!" Payrolls are harder and harder to "squeeze". The answers, more and more, must be found in the *largest* single expense category in manufacturing —the cost of component parts and the cost of finished-product assembly.

As Purchasing Agent, you are uniquely equipped to alert your Management colleagues to the *proved* potential for savings that can be made in the cost of small parts and their installation in the finished product. Though the *unit* cost of these parts is low, the quantities used are so great and the labor cost of installing them runs so high that the possible savings run into the *billions* of dollars annually for American industry as a whole!

Especially in the field of tubular rivets and special cold-formed parts, your opportunities are greater today than ever before—for the simple reason that very substantial technological advances have been made in cutting costs and widening areas of application during the last decade. *Your competitors may already be cashing in on these advances!* Your company can cash in too—simply by getting the answers to these two questions:

1. Can permanent fasteners now used in your company's products be replaced by standard tubular rivets?

On the average, you can count on savings running into the thousands of dollars per year whenever you can replace fasteners of higher unit cost and/or higher labor-installing cost with standard tubular rivets applied at far higher speed by modern rivet-setting machines!

If your answer is "Yes", call in Milford and let's get started! If your first off-hand answer is "No", change it to "Maybe" until you find out for sure by calling in a Milford expert (*Milford's nearest expert is only a phone call away!*) Why? Because the limits of the "possible" have been greatly expanded already—and are continually being stretched! The odds are very good that your "Maybe" will turn into "Yes" when a rivet expert analyzes the problem!

2. Can small machined parts now used in your products be replaced by cold-formed parts—saving 30-70%?

Here the odds are even better—and the savings may be even greater! Experts say that American Industry's present two *billion* dollar annual bill for machined parts can be cut *at least in half* when all the parts that *can* be cold-formed *are* cold-formed, instead of machined. Why? Because *finished* cold-formed parts cost no more than—or only slightly more than—*the raw metal stock* needed now to turn out the same parts on a screw machine!

So—ask *now* for cold-formed "quotes" on every single machined part your company uses already or plans to use on new models or products. You'll find that almost *every* such part *can* be cold-formed (*Don't give up trying 'til you've asked Milford!*) at a saving that ranges from 30% to 70%!

And the savings you make on the cost of the part itself may be only the beginning! Any—or all—of the other "Cold Forming Benefits" (*see next page*) may also apply and help cut your finished product cost even more!

PLEASE TURN THE PAGE FOR FULL DETAILS, SPECIFIC EXAMPLES.

HERE'S WHY MILFORD COLD-FORMING CUTS SO MANY COSTS SO GREATLY . . .

Conservation of STOCK

Machining is *cutting away*. You pay for both the finished part—*and* the scrap.

Cold-forming is *re-shaping*. ALL the stock is used. There's no scrap to pay for! So the processing cost in cold-forming is offset by the saving in scrap—in large part or in full.

Accordingly, you usually buy *finished* cold-formed parts for very little more than the raw cost of the machining stock—before processing! Why should *you* pay for processing—*when you don't have to!*

* * *

Conservation of STRENGTH

The tensile strength of a machined part is equal to the strength of the stock less the weakness caused by *cutting into the grain*. The tensile strength of a cold-formed part is equal to the strength of the stock —*period!* The grain of the stock is *never* cut—only *"flowed"* into the desired shape.

Hence cold-formed parts are *always* stronger than machined parts when made to the same size from stock of equivalent tensile strength. The "leeway" this provides often makes possible a far better assembled product at far less cost!

* * *

Conservation of TIME

When screw machines are used, parts are made "one chip at a time". Cold-formed parts are shaped *integrally*—by dies—in one, two or more automatic steps. As a result, the cold-formed part is finished almost before the screw machine cutting tool can get started, so your cost is far less.

Cutting tools must be re-sharpened often, and that takes time! Furthermore, cold-formed parts have a naturally smooth finish—there are no "tool marks" to worry about. When you save time and eliminate finishing problems, you save money!

Production Cost is MINIMAL

Cold-forming dies are made fast and at low cost. Expense is in line on runs as low as 5,000 units when tool steel dies are used. On extended runs the additional expense of carbide dies is less than the cost of making multiple tool steel sets.

First cost is last cost; re-orders go into production within minutes after dies are pulled from the file.

Feeding wire coils involves far less handling than bars or rods and—since *no* metal becomes scrap—far less weight lifting!

* * *

"Shapes" are almost UNLIMITED

In machining, the tool must work against *turning* stock. Any shape "out of round" presents difficulties and expense—or can't be done at all.

Cold-forming dies recognize no such limitations; as long as the stock can go in and come out, the "shape" doesn't matter. Since die wear is negligible, it's easy to hold tolerances up to ±.001.

"Amount of upset" *used* to be a limiting factor. But this limit has been pushed 'way back—as you'll note from some of the examples shown at right.

* * *

Cold-forming can SPEED ASSEMBLY

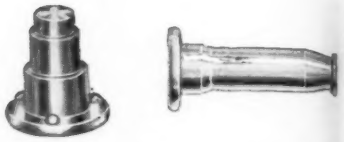
To make cutting easier, stock for screw machines must contain sulphur. This adds brittleness, makes parts hard to work.

Cold-formed parts, made from more ductile alloys without loss of strength, are far more adaptable to self-feeding high-speed automatic riveting machines.

Whenever you can switch, by use of cold-formed parts, from slow driving or from wrenching methods to high-speed riveting techniques, you're on the high-road that can lead to thousands in savings.

ALL THESE PARTS SA

Although these particular parts were cold-formed to solve specific problems,



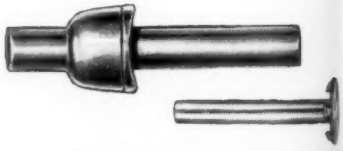
(LEFT) **SHAFT FOR NYLON ROLLER.** Blanks were made with 4 cuts on screw machines, then projections were welded on by hand. Milford cold-forms the projections right into the head, and saves the user a young fortune!

(RIGHT) **LOUVRE FASTENER** for a fluorescent lighting fixture. 2-piece machined fastener used formerly cost $35 per thousand. Milford's charge for this cold-formed part: $7.50 per thousand—a saving of nearly 80%!



(LEFT) **ALUMINUM "FOOT"** for refrigerator butter tray. Milford uses .109" wire, "upsets" a piece 1.63" long, forms the big head smoothly—without fractures. Think of the tremendous saving in costly stock alone!

(RIGHT) **ROLLER STUD** for filing cabinet drawer. Scrap loss was 60% when part was machined from rod stock. Milford cold-forms the entire part—even the "dimple"—from wire stock without any metal waste whatsoever!



(LEFT) **PIVOT-FASTENER.** Special shoulder, curved to fit tubular legs of metal furniture, can't be made on a screw machine. Cold-formed by Milford, this part simplifies assembly and saves the manufacturer thousands!

(RIGHT) **LIGHT SOCKET PART.** The cost of welding the 4 projections to a machined blank would break a bank! Milford cold-forms the part—complete with projections—in split-seconds!—at unbelievably low cost!

MILFORD'S 5 FULLY-EQUIPPED PLANTS PROVIDE FAST, DEPENDABL

SAVE BIG MONEY

any one of them may "spark" an idea that can save thousands of dollars for your company!



(LEFT) **TERMINAL BOARD INSERT.** Millions of these parts were machined each year at $14 per thousand. Now Milford cold-forms them at $5.76 per thousand. One user alone saves more than $13,000 annually!

(RIGHT) **SUN VISOR STUD.** Famous automaker gave up when 5 cold-forming firms failed, paid $26 per thousand to machine this part. Milford came through—cold-formed it perfectly. Automaker now saves $60,000 yearly!



(LEFT) **SPACER STUD** used in auto transmissions. Many "cuts" plus high scrap ratio made the machined cost of part $15.18 per thousand. Milford's cost to cold-form it: $3.22 per thousand! The saving? Close to 80%!

(RIGHT) **COVER-INTERLOCK STUD.** Head shape, designed to make stud hard to remove once installed, made this part cost plenty—until Milford cold-formed it, "trick" head and all, with low-cost dies, at fantastic savings!



(LEFT) **RIDGED-HEAD LOCK SCREW** for business machines. Old way: make blank by machining, then grind ridge. Milford way: cold-form entire part, ridge and all, from wire stock in one operation at rock-bottom low cost!

(RIGHT) **BINDING POST** for transformer. Collar lugs bite into molded insulation, anchor post when nut is tightened. Screw machines can't turn out parts like these; Milford cold-forms them by the thousands—daily!

HERE'S WHY TUBULAR RIVETS SAVE SO MUCH ON FINAL-PRODUCT COST...

1. Because rivets are *cold-formed,* you get all the benefits of the cold-forming technique automatically; no wastage of metal, high production speed, fast delivery, etc.

2. Setting the rivet takes only a split-second. It's one of the very *fastest* methods of assembly. Think how much that cuts down labor costs on the assembly line.

3. Because rivets are fastened by *clinching,* tolerances rarely present a problem. Hole diameter, clinch allowance and head size are practically the only variables—and so the rivet is usually a far simpler part than the fastener it replaces—and costs far less!

4. Advances in alloys make it possible to provide *exactly* the right "strength" for your specific application. Milford makes rivets from every metal and alloy you're ever likely to need or want.

5. When you consider rivets, think first of *tubular* rivets. They rarely cost more *installed* than solid rivets even though they're slightly more complicated to make. And the big advantage of the tubular rivet is that the "impact" force needed can be far more closely controlled.

6. Maybe you think of rivets as suitable only for "coarse" assembly. *You're wrong!* Thanks to hydraulic or spring cushioning, many of industry's most delicate and fragile assemblies are now fastened with tubular rivets.

7. Though the basic principles remain the same, the rivet-setting machine has kept pace with the tremendous advances made in the rivet itself. Today it's one of the most versatile and adaptable machines used in industry. Rely on Milford to provide both the right rivet and the best machine to set it—and to give you, wherever possible, the full benefits of semi- or full-automatic action and feed, for fastest possible assembly.

★ ★ ★

These are only *some* of the basic reasons why tubular rivets can cut your costs. But when it comes to a specific application, remember these "tips" to realize the maximum benefits for your company:

The *best* time to contact Milford is just before design of your product is finalized. Why? Because slight changes can be made *then* with the stroke of a pencil—and may make all the difference between a small saving or a very large one. In some cases, these minor changes determine whether rivets can be used at all. In other cases, the slight changes suggested by Milford will make it possible to use high-speed fully automatic setting machines instead of far slower, manually operated models — and that can make a tremendous difference in your final product cost! So check Milford as *early* as possible.

Never be content that you've cut fastening cost to the limit until you've had Milford check *all* the possibilities. Sometimes the solution will be far easier than you think; other times, a slight redesign of one or two parts may be all that's needed to allow you the full cost-cutting benefits of tubular rivets applied with fast, automatic rivet-setting machines!

The MILFORD RIVET & MACHINE CO.

MILFORD CONN. | NORWALK CALIF. | ELYRIA OHIO | AURORA ILLINOIS | HATBORO PENNA.

ERVICE COAST TO COAST! RELY ON MILFORD—AND YOU'LL BE SURE!

To find out how much YOUR company can save

Phone NEAREST MILFORD PLANT OR OFFICE (Full listing below)

or Write MILFORD'S HOME OFFICE DIRECT! Use this form

THE MILFORD RIVET & MACHINE CO., Milford, Conn.

Gentlemen: Tell me how much we can cut our costs by changing over to the use of

COLD-FORMED PARTS	TUBULAR RIVETS

(NOTE: Please provide as much of the material and information indicated as possible. It will help us come through far faster!)

I enclose:

- ☐ Sample ⎫ of part now used, or part we plan to use (if new model or product)
- ☐ Blueprint ⎭
- ☐ Sample ⎫ of assembly in which part is used
- ☐ Blueprint ⎭

I estimate:

Initial quantity probably needed will be approximately:

Annual usage of part may run to: _____ per year

I enclose:

- ☐ Sample of present or proposed assembly, together with a sample of each of the parts that go into it.
- ☐ Assembly blueprint

I estimate:

Initial quantity probably needed will be approximately:

Annual usage of part may run to: _____ per year

NAME _____ POSITION _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

The MILFORD RIVET & MACHINE CO.

PLANTS

New England Div.—857 Bridgeport Ave., Milford, Conn. (Milford 2-1681)

Pacific Division—12937 East Imperial Highway, Norwalk, Calif. (Phone Whittier, Calif., Oxford 3-3777)

Ohio Division—1001 West River St., Elyria, Ohio (Elyria 3137)

Illinois Division—801 Illinois Ave., Aurora, Ill. (Aurora 2-4278)

Penn Division—Jacksonville Road, Hatboro, Pa. (Osborn 5-4560)

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Chicago 39, Ill.—Harry F. Spath, Jack Innes, Harold Fish, 5033 W. Armitage Ave., Berkshire 7-1020

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Indianapolis 2, Ind.—A. D. Moore, Harry T. Smith, 1916 N. Meridian St., Talbot 4549

Jenkintown, Pa.—Riley & Aleshire, Roy Lesher, 615 Greenwood Ave., Ogontz 1708

Newark 2, N. J.—Howland Hayes, 972 Broad St., Market 2-5877

New York 7, N. Y.—The Oldham-Rust Co., Inc., 10 Muray Street, Barclay 7-7874

Norwalk, Calif.—Arthur R. Hessell, 10920 Gard Ave., Torrey 3-2606

Pittsburgh 20, Pa.—T. S. Higbee, 1007 McCartney St., Walnut 1-5171

Racine, Wis.—G. K. Tollaksen, 1516 Washington Ave., Racine 2-2345

St. Louis, 17, Mo.—Louis J. Rich, 7743 Arthur Ave., Mission 5-4344

St. Paul 5, Minn.—John R. Saunders, 2166 Grand Ave., Emerson 3396

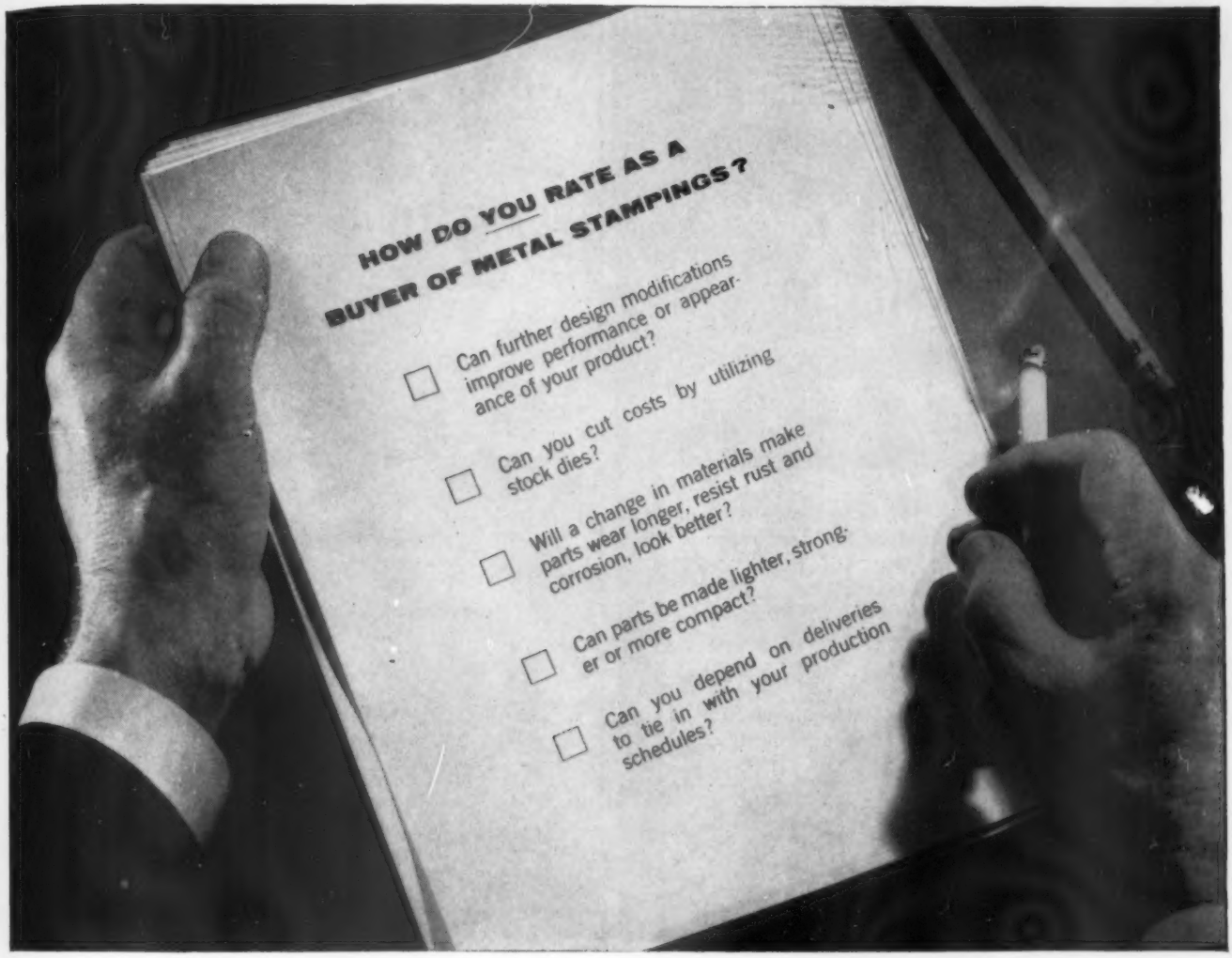
San Francisco 27, Calif.—W. M. Jensen, 80 Stonestown, Overland 1-4425

Seattle 4, Wash.—H. Rex Loreman, The National Co., 1927 1st Ave. So., Mutual 2450

Seneca Falls, N. Y.—Howard I. Comstock Jr., Box 110, Seneca Falls 813

Stratford, Conn.—Henry W. Schipul, 239 Housatonic Ave., Edison 7-9647

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For More Information Circle No. 644 on Inquiry Card—Page 17

SPECIFY G. I.

Smooth Power MOTORS

. . . America's Leading Manufacturers Do! . . .

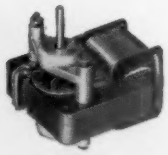
RELY ON GI's quarter of a century of design leadership to produce the best motor for the job.

COUNT ON GI engineering facilities to help you in the development of specific motors for special applications.

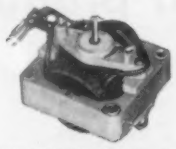
DEPEND ON GI production know-how to speed your products down the line profitably, and on time!



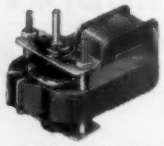
NEW MODEL B
4-pole, 4-coil shaded pole AC Induction Type



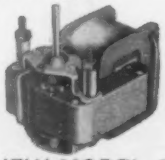
MODEL A
2-pole, shaded pole AC Induction Type



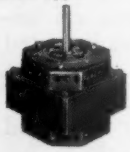
NEW MODEL E
4-pole, shaded pole AC Induction Type



MODEL C
2-pole, shaded pole AC Induction Type

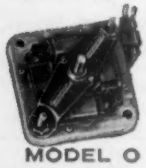


NEW MODEL F
2-pole, shaded pole AC Induction Type



MODEL D
4-pole, 4-coil, shaded pole AC Induction Type

Write for complete specifications and quantity-price quotations!



MODEL O
2-pole Capacitor Reversible Type, AC only (for 6, 12 or 24 volt)

THE GENERAL INDUSTRIES CO.

DEPARTMENT GP • ELYRIA, OHIO

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Then let Southern's HIGH QUALITY Wood Screws work for you, to speed up production and reduce rejects.

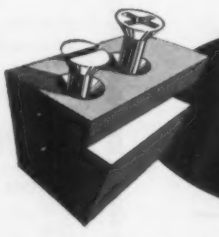
Southern Wood Screws are precision made. Their sharp gimlet points start fast and hold tight, cut through wood without tearing. Produce *quality* results at a lower cost, to put your product in the best competitive position.

A Southern Wood Screw for every need, ready to ship from stock. All made to Federal Specifications FF-S-111a.

Screws in bulk Lubricated Free upon request. Phillips or Slotted — Flat — Round — Oval.

Wood Screws • Stove Bolts • Drive Screws
Machine Screws • A&B Tapping Screws
Carriage Bolts • Hanger Bolts

Write for free samples and stock list.
Box 1360-P-1.



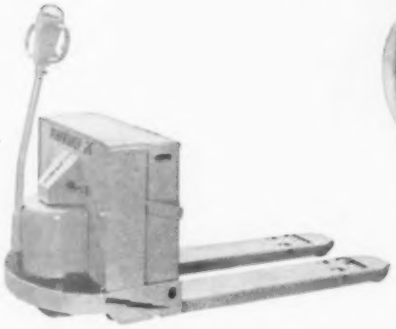
Southern SCREW COMPANY
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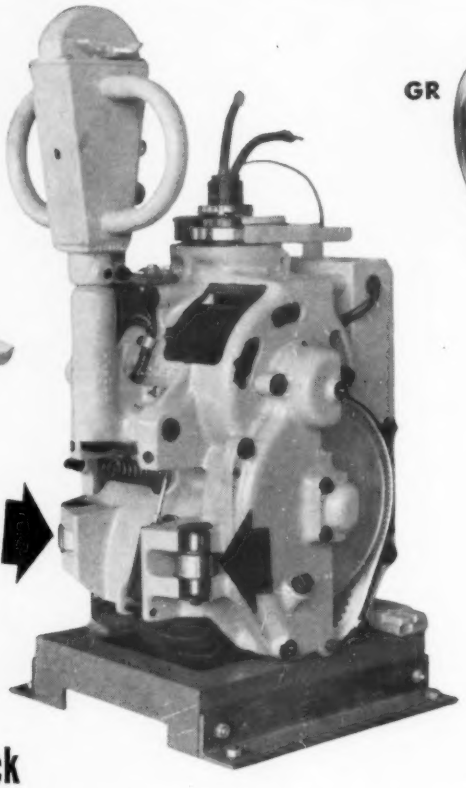
Factory Warehouses: New York Chicago Los Angeles Dallas

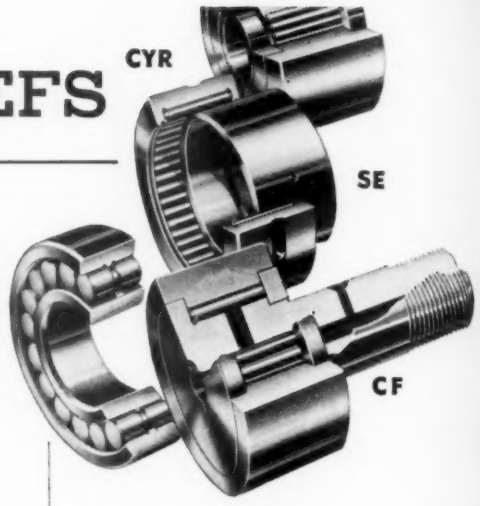
For More Information Circle No. 646 on Inquiry Card—Page 17


"To the success of your mechanism"
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THE WILLIAM D. GIBSON COMPANY
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RAYMOND Manufacturing COMPANY
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McGILL BEARING BRIEFS







Sealed GUIDEROL® bearings meet design demands of Clark *POWRWORKER* hand truck

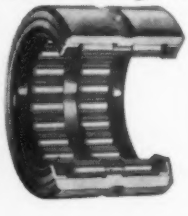
The power head in Clark Equipment Company's Powrworker trucks required a bearing to provide radial support to the wheel-mounted pivoting drive unit. In addition it had to seal out dirt, carry a sizeable load in limited space and adapt to vertical mounting. Sealed GUIDEROL bearings meet each of these requirements.

For instance, the bearings are only 4½ inches above the floor and in contact with contaminating materials such as dirt, chemicals and brine that would freeze up ordinary unsealed bearings. Use of the Sealed GUIDEROL bearings eliminates the need for multiple parts and extra machining of the housing that would be required with auxiliary sealing of an ordinary bearing.

Although limited in size by the fit of the unit into the truck, the GUIDEROL SG Bearings take loads up to 1,500 pounds in absorbing starting and stopping inertias of the truck and the unit.

The SG Series bearings operate perfectly and last longer in vertical mounting because the center guided construction provides a guide rail that keeps the grooved rollers in alignment under any load from vertical to horizontal. They are available with built-in single and double seals with no increase in standard Guiderol bearing width.

To help insure product performance and to simplify production and assembly, investigate Sealed GUIDEROL Bearings today.



FOR YOU

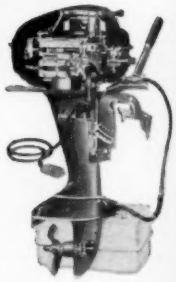
Complete details on the Sealed GUIDEROL Bearing are contained in McGill Catalog No. 52. Send for a copy today.

SIKORSKY USES SEALED GUIDEROL® BEARINGS in HELICOPTER ROTORS



An obvious "must" for helicopter rotors is dependability. McGill Sealed GUIDEROL Bearings help to provide that dependability as drag hinge and flapping hinge bearings in the main and tail rotors of the Sikorsky S-55, helicopter series.

SEALED GUIDEROL® BEARINGS BRING NEW LATITUDE in DESIGN to SCOTT-ATWATER MOTORS



Used as crankshaft support in the new Scott-Atwater Bail-a-matic outboard motor line, Sealed GUIDEROL bearings give more positive seal retainment, make higher operating speeds possible, give greater capacity for future horsepower increases, and simplify assembly.

50th McGILL Anniversary

Insure performance with McGILL®...

MULTIROL®—GUIDEROL®—CAMROL® full type roller bearings

McGILL MANUFACTURING COMPANY, INC., 400 N. LAFAYETTE ST., VALPARAISO, INDIANA

For More Information Circle No. 650 on Inquiry Card—Page 17



DIE-CAST... *believe it or not...*

at extremely low cost!

Too complicated to be die-cast? Some might think so. Yet today Bendix Foundries are handling this aircraft instrument housing frame to perfection as a *production* die-casting job . . . and saving 32% in labor and burden and 97.5% in material over previous sand-casting methods.

This is only one example of how we can deliver top quality (and at low cost) in both ordinary and "impossible" die-castings of all kinds. Here are some of the advantages we offer you:

1. **LOWER FINISHING COST**—We die-cast to such close tolerances that you save machining time and money. So *final* cost . . . the only one that really counts . . . comes *down*.
2. **LIGHTER WEIGHT**—There's far less waste metal for you to machine off . . . and unmachined areas can be cast thinner for additional weight savings.
3. **BETTER FINISH**—Surfaces on unmachined parts are much smoother.
4. **VERSATILITY**—We handle magnesium or aluminum with equal facility.
5. **ANY QUANTITIES AT LOW COST**—Long runs are not necessary in order for us to effect savings for you.

If you have felt that die-casting was probably too expensive or too impractical on your work, it will pay you to get our story as it applies to your specific needs. Send coupon today for full details.

Check-Chart Shows Versatility of Bendix Foundries

PROCESS USED	METAL WORKED	
	ALUMINUM	MAGNESIUM
Sand	√	√
Plaster	√	√
Shell Mold	√	√
Die	√	√
Permanent Mold	√	√

MAIL COUPON TODAY

Bendix
Foundries

Eclipse-Pioneer Division
Bendix Aviation Corporation
TETERBORO, N. J.

Yes, I'd like complete information on your die casting service as it could be applied to our work.

Name_____

Title_____

Company_____

Street_____

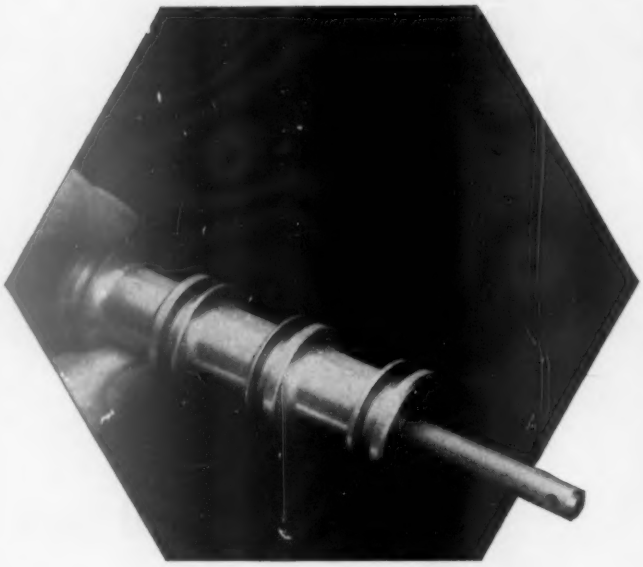
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Zone_____ State_____

West Coast Office:
117 E. Providencia Ave., Burbank, Calif.

For More Information Circle No. 666 on Inquiry Card—Page 17

There is a right way to deep drill this aluminum part



Alcoa offers the answers here . . .



On many screw machine jobs there are operations which can be done in different ways, but, there is usually just one "best" way. To supplement your own experience, Alcoa® offers users of Alcoa Aluminum Screw Machine Stock a complete technical packet containing: calculators for feeds, speeds and properties; an engineering handbook on machining aluminum; a booklet of corrected tool diameter tables; case histories of savings; a conversion chart for alloy designations. The complete packet is free for the asking. Just fill out and mail this coupon today.

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865T Alcoa Building, Pittsburgh 19, Pa.

Gentlemen:
Please send your technical packet on aluminum screw machine stock to:

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Company _____

Address _____

ALCOA ALUMINUM

ALUMINUM COMPANY OF AMERICA

For More Information Circle No. 667 on Inquiry Card—Page 17

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KELSEY-HAYES WHEEL COMPANY
DAVENPORT, IOWA

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For More Information Circle No. 668 on Inquiry Card—Page 17



Quick Prices . . . Quality Production Prompt Delivery for Every Need!

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Signs	Instruction Plates
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Gauges	Components

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For More Information Circle No. 669 on Inquiry Card—Page 17



Cut Assembly Cost with FABRICATED Inmanco® Electrical Insulation Parts

By using Inmanco completely fabricated electrical insulation parts, many manufacturers of electrical equipment are cutting costly assembly time. Inmanco parts slip into place easily because specialized fabricating know-how insures accurately fabricated insulators.

This is made possible by IMC's modern, high-speed equipment designed to shear, saw, slit, die-cut, crease, mill, form or cuff exactly as you specify. IMC also has available a complete line of insulating materials for parts, including papers, varnished cloth, combination insulation, fibre, laminates, etc.

Contact your nearest IMC office or representative for more information on fully fabricated electrical insulation parts that save time and cut cost.

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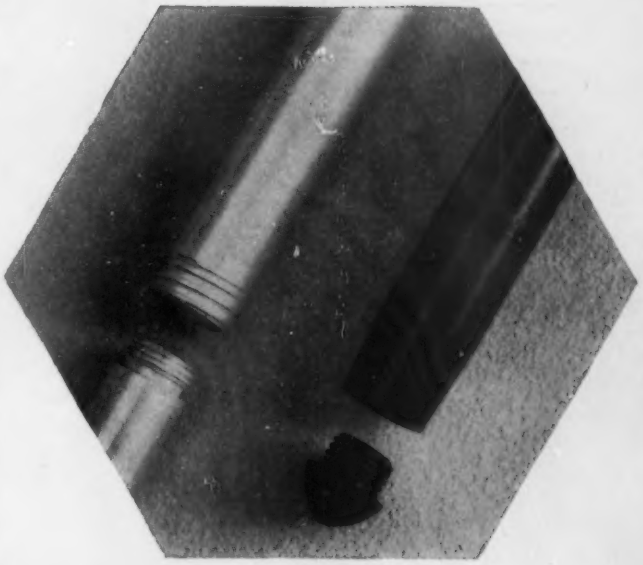
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*LOCAL STOCKS AVAILABLE AT THESE LOCATIONS

For More Information Circle No. 670 on Inquiry Card—Page 17

There is a right way to finish this aluminum part



Alcoa offers the answers here...



On many screw machine jobs there are operations which can be done in different ways, but, there is usually just one "best" way. To supplement your own experience, Alcoa offers users of Alcoa® Aluminum Screw Machine Stock a complete technical packet containing: calculators for feeds, speeds and properties; an engineering handbook on machining aluminum; a booklet of corrected tool diameter tables; case histories of savings; a conversion chart for alloy designations. The complete packet is free for the asking. Just fill out and mail this coupon today.

ALUMINUM COMPANY OF AMERICA
867F Alcoa Building, Pittsburgh 19, Pa.

Gentlemen:
Please send your technical packet on aluminum screw machine stock to:

Name_____ Title_____

Company_____

Address_____

ALCOA ALUMINUM

ALUMINUM COMPANY OF AMERICA

For More Information Circle No. 671 on Inquiry Card—Page 17

Another MILFORD contribution to CREATIVE PURCHASING*



SAW BLADES with *Advanced* METALLURGY

The steel used is specially selected for its fine grain structure. MILFORD'S modern and controlled heat treatment produces fine, uniform carbides . . . evenly distributed . . . which mean a harder, tougher, longer-wearing blade.

Blades with such properties . . . like MILFORD'S . . . cut straighter, at faster rates, and for longer periods (they also cut one of the barriers to Purchasing For Profit).

So why not take advantage of one more MILFORD contribution to "Plus Profits Through Extra Performance"? Specify MILFORD and promote your goal of Creative Purchasing*.

*The modern *concept of PURCHASING as a positive, profit-creating function.*



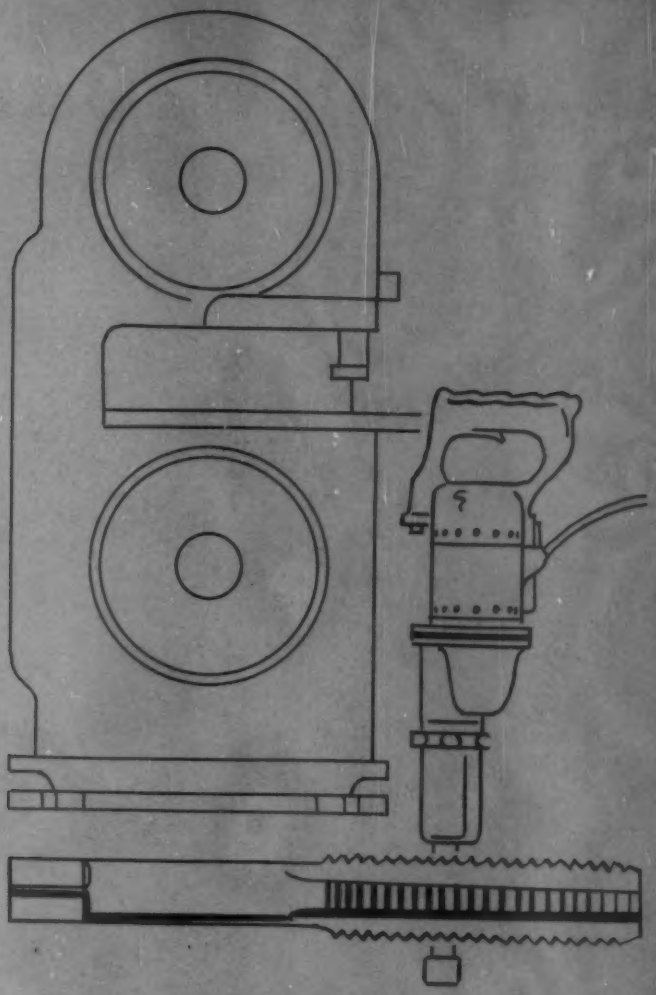
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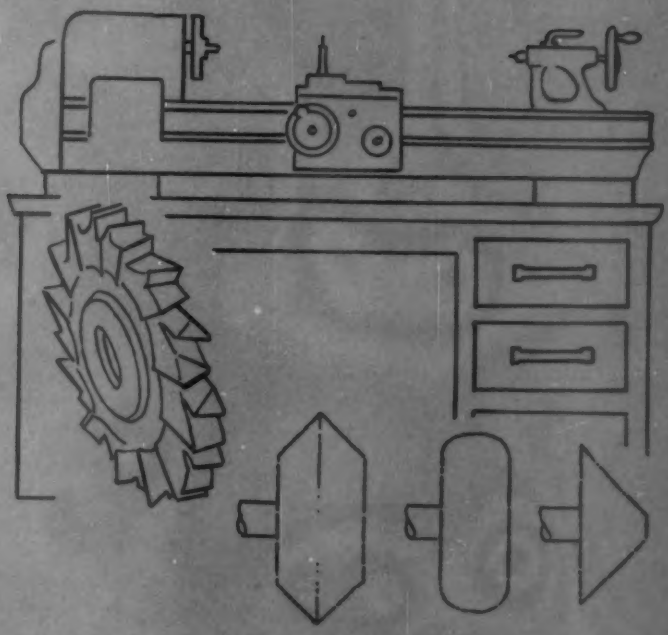
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Saw Blade Specialists for over 75 Years
NEW HAVEN 5, CONNECTICUT

Profile Blades and Band Saw Blades • Hand and Power Hack Saw Blades

For More Information Circle No. 672 on Inquiry Card—Page 17



PRODUCTION TOOLS AND PROCESSES





Check Your PRODUCTION TOOLS VQ*

	YES	NO
1. Do we make full use of our suppliers' engineering know-how when purchasing machines and tools?		
2. Are we familiar enough with our manufacturing operations to be aware of those that are ripe for new, cost-cutting tools and machines?		
3. Are we making standard and semi-standard gages and tools in our tool room that can be bought at lower cost from firms specializing in them?		
4. Are we using non-preclusive specifications whenever possible so as to get maximum competition?		
5. Do we "pass the buck" to engineering when a salesman presents a cost-cutting proposal without aggressively investigating its merits ourselves?		
6. Do we carefully weigh the pros and cons of new vs. used equipment purchases?		
7. Do we insist on blueprints of custom-built gages, fixtures, jigs, etc. so as to get the benefits of competition whenever possible?		
8. Have we studied the merits of the various machine tool leasing plans and their possible application to our operations?		
9. Are we familiar with recent changes in tax laws and their effect on the economics of making capital purchases?		
10. Have we investigated special forms and procedures specifically designed to handle capital purchases?		
11. In our assembly operations, are we using power driven portable tools for every possible application and not wasting time with manual methods?		
12. Are we aggressively promoting new cost-cutting developments such as plastic dies and jigs, etc.?		
13. Do we give engineering and manufacturing our full cooperation on mutual problems relating to machines, tools, etc.?		
14. Have we taken the initiative in developing proposals for automation, multi-spindle tooling, etc.?		
15. Do we keep abreast of all new developments in machines and tooling?		

*Value Quotient



Full of sound and fury, signifying PLENTY

7,700-s.f.p.m. wheel speed is "stopped" by 1/10,000 sec. stroboscopic exposure. (Wheel guard opened and coolant flow reduced to reveal cutting action.)

The *right* Abrasive Cut-Off Wheel by CARBORUNDUM will slice through metal in seconds...12 to 20 times faster than a power hacksaw. You get clean, accurate cuts, without extra deburring and smoothing needed after shearing or flame-cutting. For wet cutting, to extremely close tolerances, use Rubber Bond Wheels...for dry cutting at high speeds, use Resinoid Bond. Tough CARBOFLEX Reinforced Wheels are tops for all portable cutting and slotting—combine fast action with maximum safety. Your CARBORUNDUM Distributor or salesman knows how to help you use abrasive cutting, profitably, in your shop. Call him today. For free Booklet #6, "Metallic Cutting Off," write The Carborundum Company, Niagara Falls, New York. In Canada: Canadian Carborundum Company, Ltd., Niagara Falls, Ontario.

Through application "know-how" and product quality

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continually puts more sense in your abrasive dollar



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"SAND SCREEN's" unique open-mesh construction lets removed material flow *right through*... instead of loading or glazing, like conventional paper and cloth. What's more, *both* sides are usable—give you 7 to 15 times longer life. Use "SAND SCREEN" wet or dry, by hand or machine. It tears and folds easily to any desired size. Cut sheets fit oscillating or vibrating machines. "SAND SCREEN" Discs give best results when used wet with CARBORUNDUM's FASTCUT® Pad 85 Assembly. Try it—see how it slashes polishing and finishing costs in your shop. For a free sample, call your CARBORUNDUM Distributor or salesman, or write The Carborundum Company, Niagara Falls, N. Y. In Canada: Canadian Carborundum Company, Ltd., Niagara Falls, Ont.

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DISSTON

HAS THE EDGE in metal-cutting

Whatever your metal-cutting needs, Disston "know-how" will give you better cutting, longer tool life, more value for your tool dollars.

For example, the new Disston Roll-Chip Buttress-Tooth Metal Cutting Band Saw incorporates a new and stronger tooth design with a wide, non-clogging gullet. It makes possible heavier work loads. It "cuts cool," lasts longer and gives smooth finish. It is excellent for removing gates and fins from aluminum and magnesium castings and other non-ferrous metals.

In Disston files the exclusive Bite-Rite® tooth design means faster, smoother, easier cutting. The wavy teeth form curls instead of chips—thus assuring clean, open gullets. They are available in American or Swiss Pattern types for every filing need—from large castings to small intricate shapes.

The new Super-Safe Hack Saw Blades are the safest blades you can buy. With long-life high-speed-steel cutting edges on tough, shatterproof alloy-steel backs, they absorb heavy strains, will not shatter. Depend on Disston for better hack saw blades and frames, metal-cutting band saws, all types of files and circular saws.

Call your Disston distributor today and have him demonstrate these tools right in your shop. On your own machines you will see for yourself why Disston quality means more efficient, more dependable metal-cutting.

Write for more information on these tools.

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ESTABLISHED 1840 REG. U.S. PAT. OFF.

For prompt service,
expert advice,
reliability, many economies
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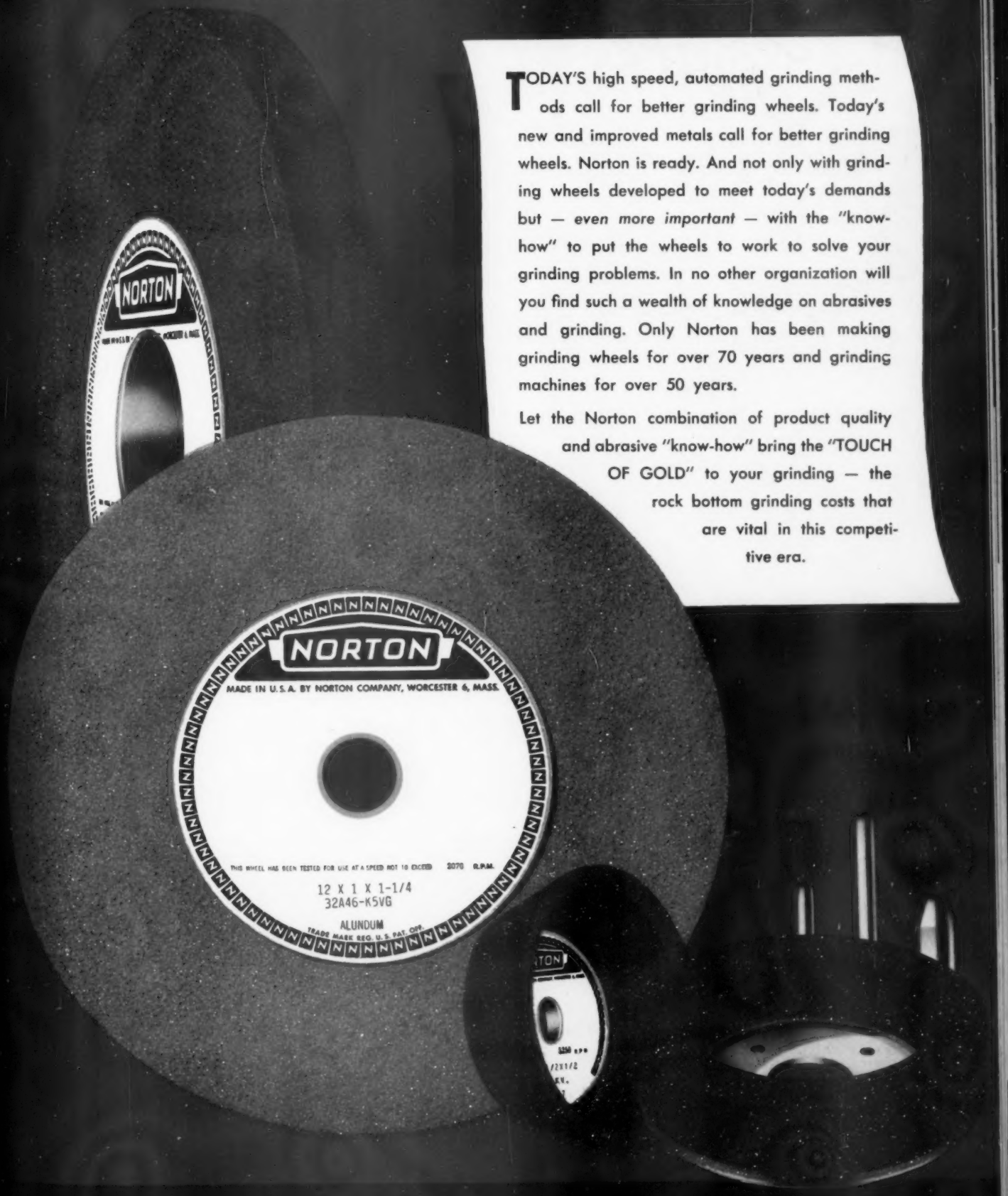
For More Information Circle No. 678 on Inquiry Card—Page 17


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NORTON KNOW-HOW can bring the "TOUCH OF GOLD" to your grinding

TODAY'S high speed, automated grinding methods call for better grinding wheels. Today's new and improved metals call for better grinding wheels. Norton is ready. And not only with grinding wheels developed to meet today's demands but — *even more important* — with the "know-how" to put the wheels to work to solve your grinding problems. In no other organization will you find such a wealth of knowledge on abrasives and grinding. Only Norton has been making grinding wheels for over 70 years and grinding machines for over 50 years.

Let the Norton combination of product quality and abrasive "know-how" bring the "TOUCH OF GOLD" to your grinding — the rock bottom grinding costs that are vital in this competitive era.



Making better products . . . to make your products better

Norton Service

can help you cut your grinding costs



PRODUCT COMPLETENESS



It means just the right wheel for each of your grinding jobs — wheels developed in the Norton research laboratories especially to meet today's exacting demands — it includes wheels of the exclusive 32 ALUNDUM abrasive and the new record-breaking G and K bonds. For you it means lower cost grinding. And if it's abrasive you use it also means the right type for each job — whether it's polishing, lapping, tumbling or pressure blasting.

ENGINEERING HELP

You can be sure that Norton engineering assistance will give you the full benefit of Norton product variety. Right near you there is a Norton Abrasive Engineer or a Norton factory-trained distributor representative who will see that you get exactly the right wheel for each grinding job — the wheel that will do the job at lowest cost. And to help your men use the wheels to best advantage there is a vast library of Norton know-how books and motion picture films.



DETROIT



PHILADELPHIA



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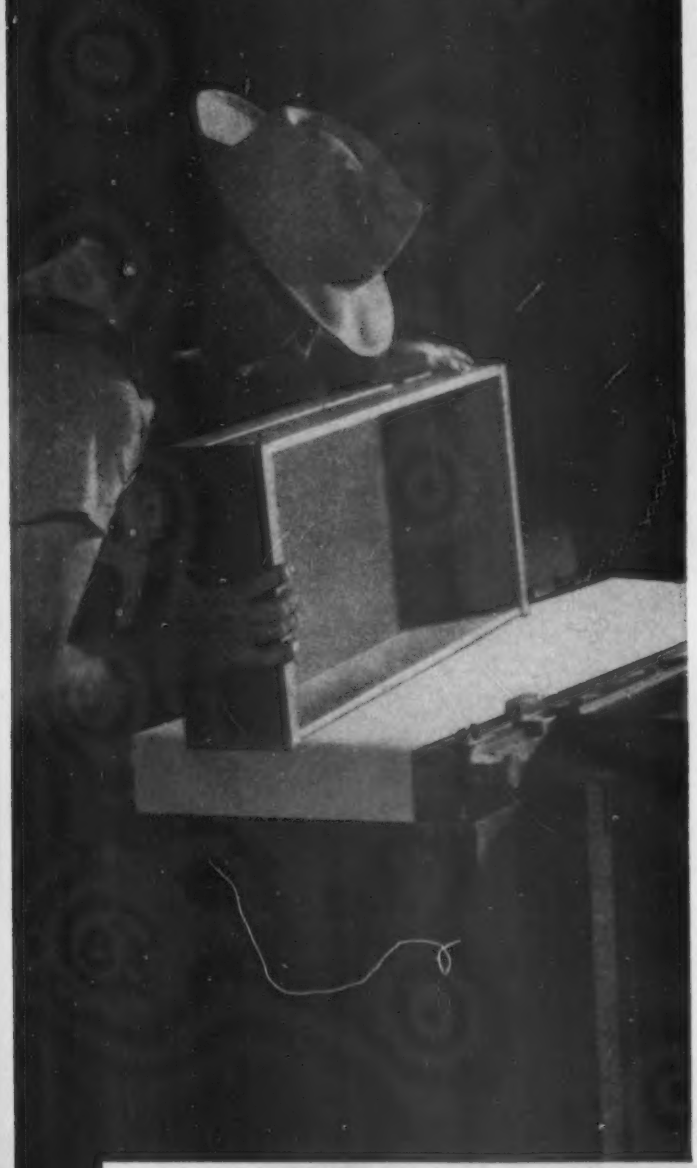
When the correct wheels for your jobs have been determined they, too, are handy to you — by the thousands in the five Norton warehouses and on the shelves of Norton distributors in over 225 cities of the United States. And these local stocks are backed by the gigantic stock rooms in the mile-long Norton Worcester plant — the world's largest grinding wheel plant. Serving foreign countries are seven Norton branch grinding wheel plants and distributors in all principal cities.

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You can spot productive hands by the company they keep!



Drawer sanding gets a lift with Behr-Manning abrasive belts

The job is fast and easy with this up-to-date coated abrasive application. A wide BEHR-MANNING abrasive belt, cool cutting and long-lasting, teams with a glass-lipped drawer sander to assure superior finishes at record breaking speed.

Whatever your finishing problems, a BEHR-MANNING Field Engineer can be helpful. He'll recommend a solution and prove it in your plant or at a BEHR-MANNING Demonstration Room. Write Behr-Manning, Troy, N. Y., Dept. PU-6.

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W-2



Delappe Discs are tops for smoothing contoured edges.



Behr-cat Strapping Tape holds tight without damaging wood surfaces.



India and Hard Arkansas Oilstones for clean, sharp cutting edges.

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For More Information Circle No. 683 on Inquiry Card—Page 17

For More Information Circle No. 684 on Inquiry Card—Page 17→


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SIMONDS SAW AND STEEL CO., Fitchburg, Mass., U.S.A.
HIGH SPEED Hack Saws
(MOLYBDENUM)
For Fast Service
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Hand Finished!

Yes, even in 1955 there are certain jobs that only skilled hands and sensitive human perceptions can do best. Precision thread lapping after grinding is one such job.

Back and forth, back and forth, removing microscopic amounts of metal until the "feel" is right. Then an instrument check, and back to the lap. And so on and on until perfection is attained.

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Greenfield, Massachusetts

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Quality is built into *genuine* Airco tips from bar stock to finished product. Here's how:

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For more complete information on all Airco torches and tips, contact your nearest Airco office or authorized Airco dealer. Ask for catalog 818.

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For More Information Circle No. 687 on Inquiry Card—Page 17

TAPS & GAGES *by Card*



Now, Card brings you a precision line of gages along with renowned Card taps. You can specify and use both with complete confidence, knowing that whatever the job demands, you'll get top performance. We assure you that the new line of gages guarantees the same quality that has made Card taps famous over the past 81 years.

Contact your local Card Distributor for prompt deliveries and helpful service.

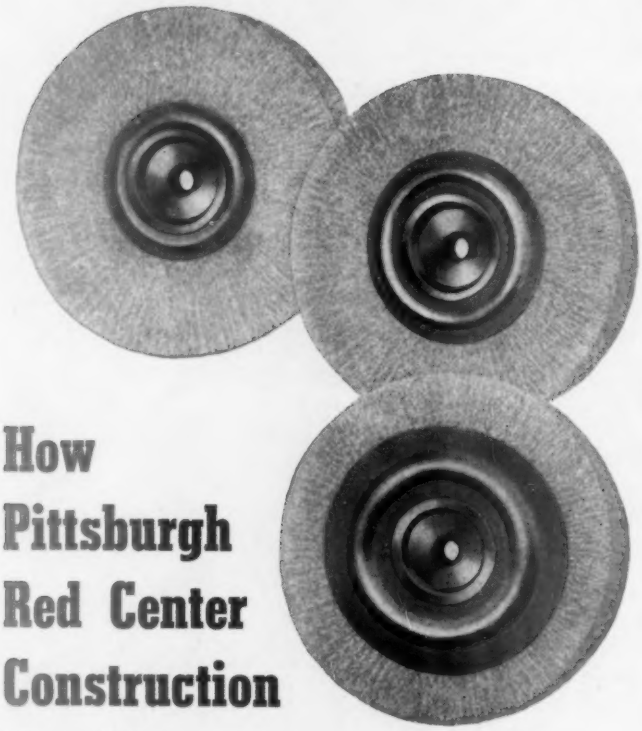
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Division of Union Twist Drill Co. **TAPS · DIES · SCREW PLATES · GAGES**

For More Information Circle No. 703 on Inquiry Card—Page 17



How Pittsburgh Red Center Construction Provides

Faster cutting while maintaining smooth finish • Freedom from shedding • Perfect balance • Longer life

In conventional brushes, when faster cutting action is desired, coarser wire is used. But increasing the wire gauge causes brittleness, destroying the wearing quality of the brush, and resulting in excessive scoring of the work.

Pittsburgh has solved this problem by maintaining the same ideal gauge wire in every brush, but increasing the fill and diameter of the hub and center plate of brushes designed for faster cutting. Thus, although cutting speed is increased, work remains unscored and the wire does not lose its inherent power to flex. These Red Center brushes last longer, maintain perfect balance throughout life, and do a better job all around.

This is just one example of superior Pittsburgh construction, engineered for both general and specific applications. For details of the complete line, write for free Catalog #54-W. Address: PITTSBURGH PLATE GLASS CO., *Brush Div.*, Dept. L-6, 3221 Frederick Ave., Baltimore 29, Maryland.

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PPG *Power Driven* **BRUSHES**

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PITTSBURGH PLATE GLASS COMPANY

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For More Information Circle No. 704 on Inquiry Card—Page 17



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Always Specify **ACE--"STANDARD OF THE INDUSTRY"**

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For More Information Circle No. 705 on Inquiry Card—Page 17

Quick Reference Legal Help For The Purchasing Agent

"PURCHASE LAW MANUAL"

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By Albert Woodruff Gray
Foreword by Stuart F. Heinritz . . . Editor, *Purchasing*

This new manual gives you practical help in determining your legal rights and obligations in every purchasing situation.

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For More Information Circle No. 877 on Inquiry Card—Page 17



I Nearly Blew My Top!

"The other day the Detrex man pointed out to me that metal cleaning and surface preparation accounts for ¼ to ⅓ of all the operations in the average metal-working plant. It sure caught me by surprise and, frankly, it started me thinking about our own plant. After a complete survey we found over ¼ of all our operations were of that type.

"What was immediately apparent to me was how important even the smallest single savings would become when multiplied by the number of operations involved. It certainly changed my way of thinking on the importance of metal cleaning and surface preparation. When I think of how little regard we had been giving those operations, *I nearly blew my top.*

"Take, for example, our metal parts washing operations. By switching to Detrex cleaners we were able to effect savings of a size we never before thought possible. One of the things that really impressed us about Detrex Emulsions was the fact that they not only do an excellent job of cleaning but they also retard rust . . . and all in one operation. That alone saved us considerable money.

"Why don't you let the Detrex man in your area make the same type of survey in your plant? It isn't going to cost you a penny if he doesn't show you how you can save money. If he does, you'll probably buy some chemicals and/or equipment, but more important you'll be saving big dollars. You have nothing to lose and everything to gain. Why not give him a crack at it next time he calls?"

**Detrex alkaline and emulsion cleaners have reduced manufacturing costs in hundreds of plants. They provide better and more positive cleaning action . . . faster and at lower cost.*



Service with a Saving!

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DEGREASERS • DEGREASING SOLVENTS • WASHERS
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EQUIPMENT • PHOSPHATE COATING PROCESSES

For More Information Circle No. 706 on Inquiry Card—Page 17

SERVICE



with a smile...
from Leland



Leland Type RA, repulsion start, induction run, drip-proof, ball bearing, horizontal or vertical, 1 or 1½ HP



Leland Type KL, capacitor start, induction run, drip-proof, sleeve bearing, resilient base, ¼, ⅓, or ½ HP

Service through any one of almost 200 Leland motor service stations, in all principal cities throughout the nation.

A smile because records prove our customers seldom *need* these extensive service facilities!

From its very founding, Leland's proud policy has been to build motors that not merely meet, but *surpass* specifications . . . motors that will do the job they were intended to do, *and then some*, to give you years of trouble-free, *service-free* operation.

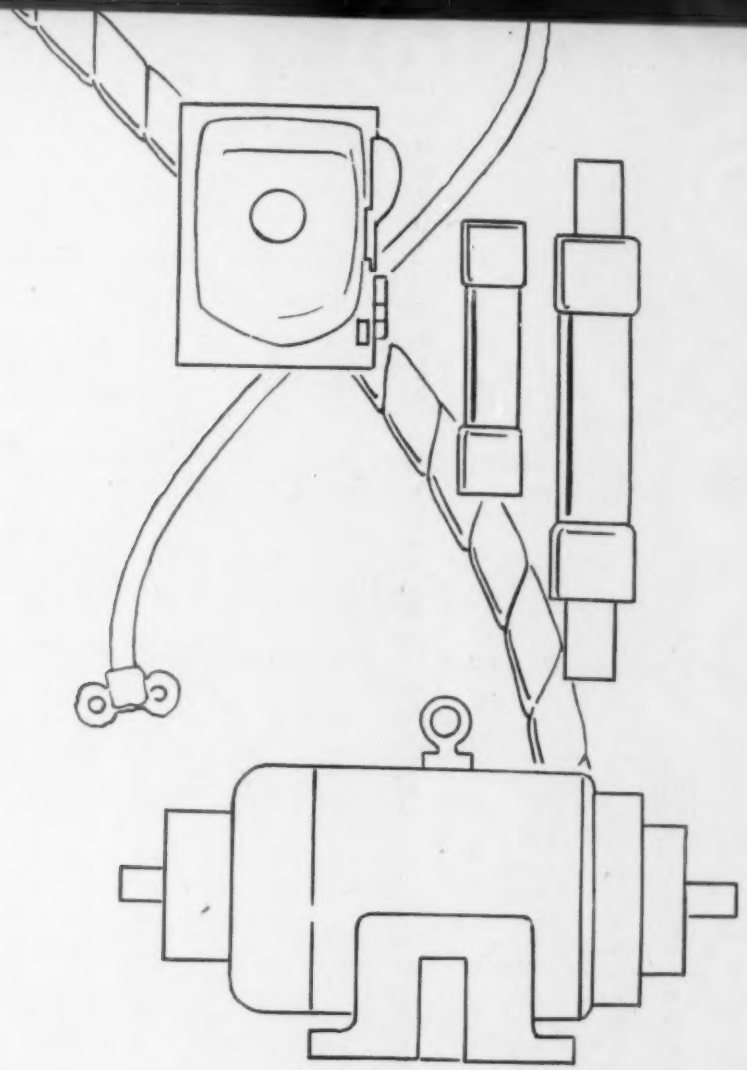
Yet for this very same reason—this policy of doing everything possible to assure customer satisfaction, Leland maintains an extensive, up-to-date motor service system to provide immediate, expert attention to your motor problems—whenever, *if ever*, they should arise.

Next time you need motors you can *depend* on—a few, a hundred, or thousands—look to Leland. The extensive line of Leland motors ranges from ⅛ to 5 hp., including all popular types and frames.

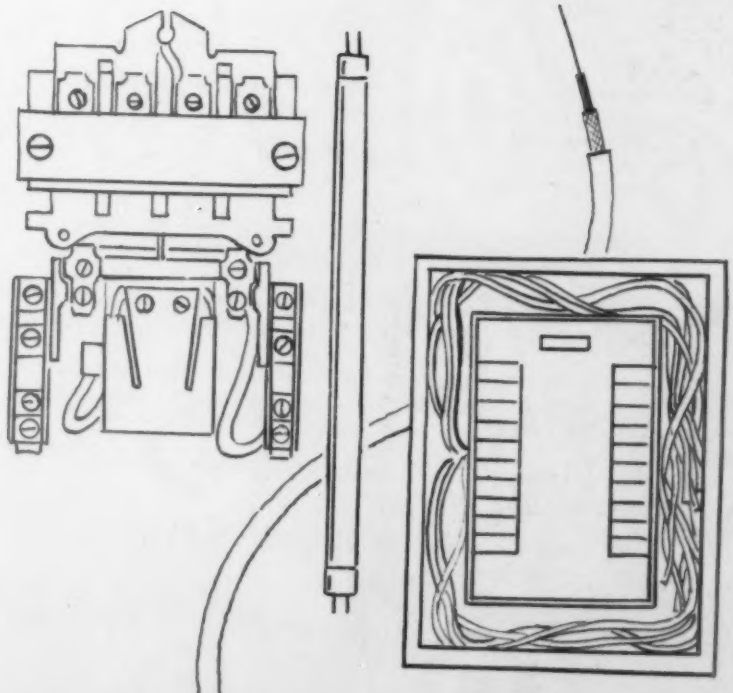
Another AMF Product
LELAND MOTORS

Write
THE LELAND ELECTRIC COMPANY
Division of American Machine & Foundry Company
Dayton 1, Ohio

For More Information Circle No. 707 on Inquiry Card—Page 17



ELECTRICAL EQUIPMENT AND SUPPLIES

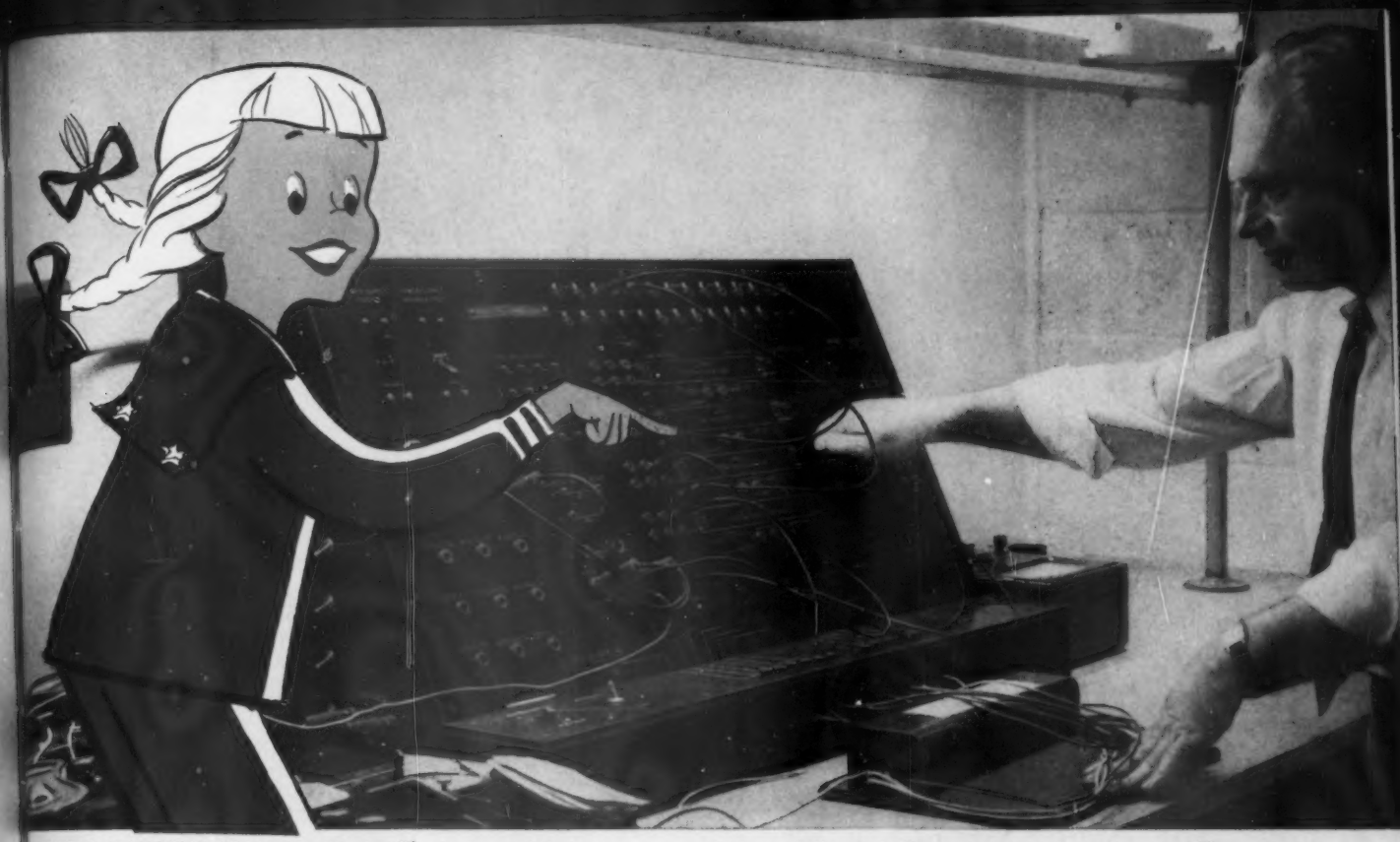




Check Your
ELECTRICAL SUPPLIES
VQ*

	YES	NO
1. Are we actively working with suppliers, engineering, and our power company to bring our power factor as close to unity as possible?		
2. Are we taking advantage of the many technical services offered by the manufacturers of electrical equipment?		
3. Do we buy electrical repair and maintenance items in advance of actual requirements to prevent delays when actual need occurs?		
4. Do we use the group replacement plan for light bulbs and fluorescent tubes to keep labor costs down?		
5. Do we know that high voltage lighting at 277 volts with fluorescent or mercury vapor lamps can cut power costs as much as 40%?		
6. Do we know our annual usages of various electrical repair and maintenance items so that we can buy the most economical quantities?		
7. Do we have a standardization program on electrical equipment and supplies to keep maintenance and inventories at a minimum?		
8. Do we have costly down time resulting from not having a spare motor on hand when failure occurs?		
9. Are we working to eliminate preclusive specifications on electrical equipment and supplies to get maximum competition?		
10. Are we familiar with the latest cost-cutting developments in welding equipment?		
11. Is it cheaper to own our transformer and pay the meter charge before the current goes through the transformer?		
12. Are we abreast of the latest developments in electronic equipment; can it be used to advantage in our operation?		
13. When buying air compressors, blowers, etc. in the 150 hp class, are we getting them with synchronous motors to keep our power factor high?		
14. Are we familiar with the many advantages arising from use of bus duct?		
15. Do we know the advantages and disadvantages of various types of circuit breakers?		

*Value Quotient



EXCLUSIVE ELECTRICAL TESTS provide 100% check of G-E ballasts assuring you of rated output from ballast to lamp. When you buy or specify General Electric ballasts, you're assured of up to 30% more light and up to 50% longer lamp life. This helps you save lighting dollars.

Flora* shows you why . . .

G-E Lamp-matched Ballasts Give You Up to 50% More Lamp Life, 30% More Light

The life and light output ratings of fluorescent lamps are based on their use with ballasts which provide the required operating characteristics. General Electric lamp-matched ballasts meet all lamp requirements; in many ways they exceed prescribed lamp and CBM specifications.

An indication of the importance of the ballast to more economical lighting is given in a report issued by the General Electric Lamp Division which reads in part: "Tests indicate that ballasts which deliver improper values reduce lamp life by as much as 50% and light output by as much as 30%."

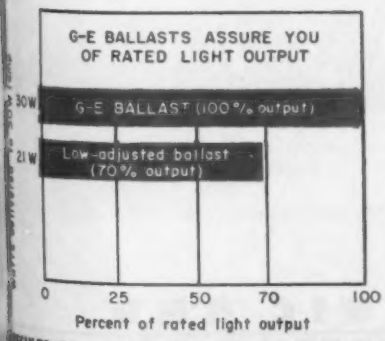
To fluorescent lighting users, this means G-E ballasts can save thousands of dollars in lighting costs.

Next time you specify equipment for a fluorescent lighting installation, make sure you get the best . . . specify General Electric lamp-matched ballasts.

A G-E ballast tag or sticker on your fixture is proof that it's equipped with the best in ballasts. It's the easy way to be certain. For further information on G-E ballasts, write Section 401-14, General Electric Company, Schenectady 5, New York.

***Miss Fluorescent Ballast, G.E.'s ballast mascot.**

Copyright 1955, General Electric Company.



RESULTS OF A SPECIFIC TEST show that light output can be reduced by as much as 30% when ballasts do not deliver specified electrical values. Specify G.E. for rated output.

Five more reasons why

GENERAL ELECTRIC IS YOUR BEST BALLAST VALUE

- EXCLUSIVE SOUND RATING SYSTEM
- SUPERIOR QUALITY CONTROL
- LONGER BALLAST LIFE
- PROVED PRODUCT LEADERSHIP
- COMPLETE CUSTOMER SERVICES



Progress Is Our Most Important Product

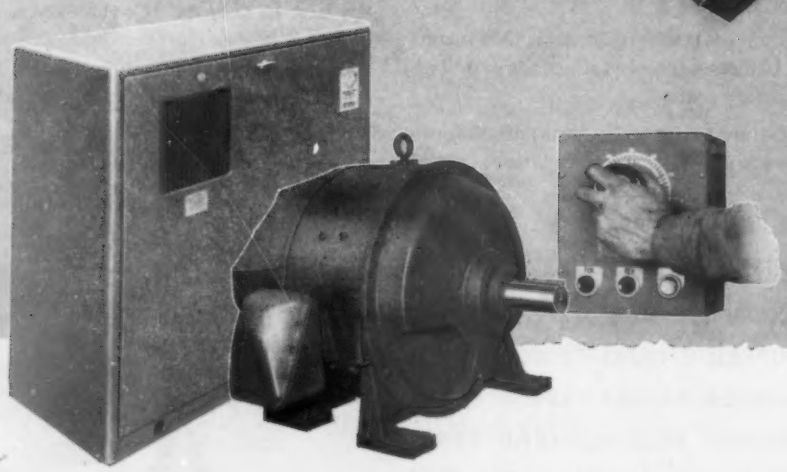
GENERAL ELECTRIC

117 Years of VARIABL

A-C. MOTORS • D-C. MOTORS • GEARMOTORS • ELECTRONIC CONTROLS • REGULATORS • M-G SETS • GENERATORS

RELIANCE V★S DRIVE ®

AND



D-1494

RELIANCE ELECTRIC AND ENGINEERING CO.

CLEVELAND 10, OHIO



MORE THAN 100,000 ELECTRICAL ITEMS are promptly available from nearby Graybar — complete wiring systems for any industrial need . . . apparatus for power distribution . . . indoor and outdoor lighting units and lamps . . . ventilating, signaling, and "intercom" equipment . . . plus cable, conduit, wiring devices, and tools needed to install them.

If it's electrical, you can get it from Graybar

SEND FOR YOUR FREE COPY, TODAY

This fact-filled booklet "24 Time- and Money-saving Ideas" gives actual case-history proof of the statements made at right . . . demonstrates conclusively the savings possible through improved utilization of electrical equipment of all kinds. Write to the address below for your copy.



For more information relative to any electrical installation, however, call your nearby Graybar Representative — he'll be happy to serve you.

And, because you want efficient service, here are four more reasons why your next order for electrical equipment and supplies should read "via Graybar."

1. Graybar distributes the products of over 600 of the nation's leading manufacturers — well known lines of proved design and construction.

2. You or your electrical contractor can get prices and specifications on all these items through your local Graybar office or warehouse.

3. Local stocks of standard electrical items and fast delivery on non-stock lines assure on-schedule deliveries for both construction and every-day maintenance needs . . . in emergencies, shut-down time can be held to a minimum.

4. Graybar Specialists in all of the major electrical fields are always available for consultation on out-of-the-ordinary projects. You can rely on them for careful analysis of your requirements and complete impartiality in product recommendations.

Make it a point always to call Graybar *first* — a single source . . . a single responsibility will save you time and money.

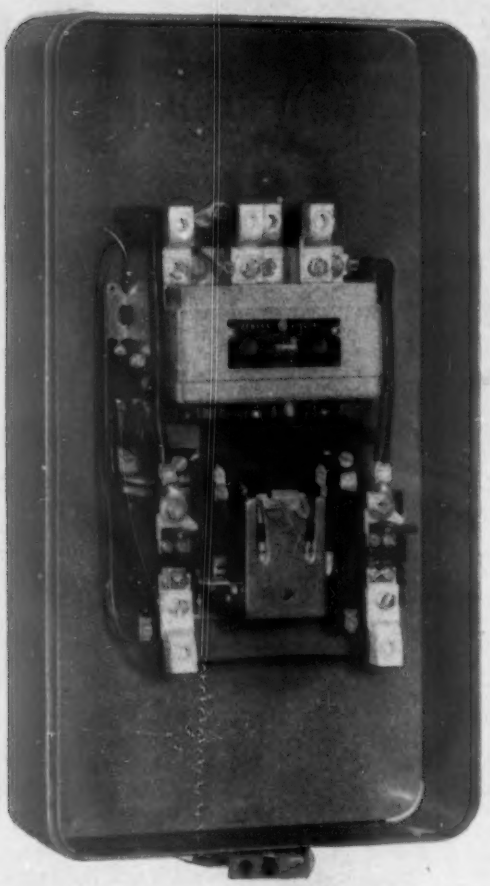
Graybar Electric Co., Inc. Executive Offices: Graybar Building, 420 Lexington Ave., New York 17, N. Y.

403-176

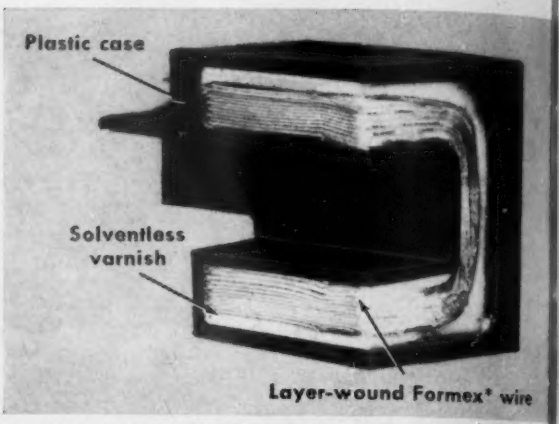
Call Graybar first for... Graybar QUALITY *Everything Electrical*

IN OVER 100 PRINCIPAL CITIES

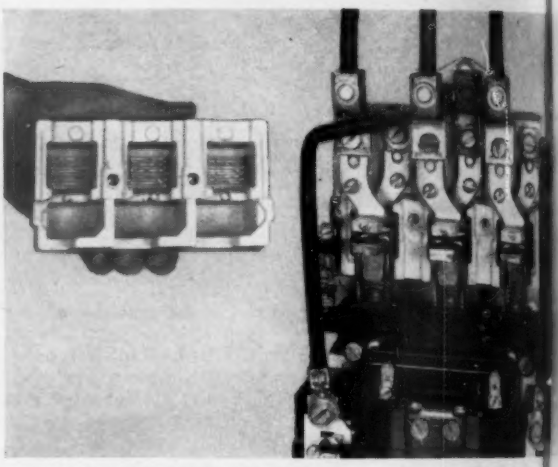
NEW G-E SIZE 4 STARTER



NEW SIZE 4 STARTER is designed for full-voltage starting of squirrel-cage motors. Bi-metallic overload relays may be easily changed from manual to automatic reset without removing from case.

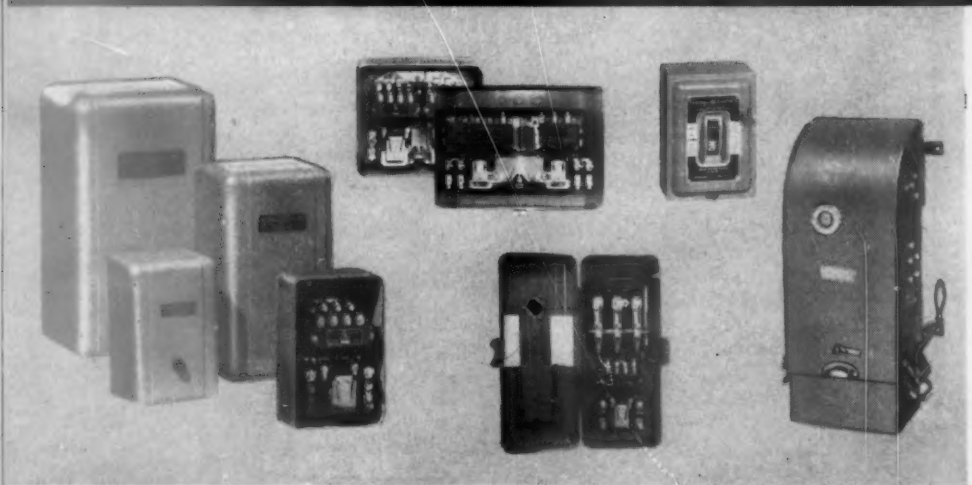


STRONGBOX MAGNET COIL is enclosed in a tough molded plastic case. Coil has firmly anchored terminals and is protected against dirt, oil and moisture.



SPECIAL ALLOY CONTACTS give long weld-free life. Arcs are quickly extinguished by new blow-out design of contacts and cooling action of grids.

CHOOSE FROM THE COMPLETE LINE



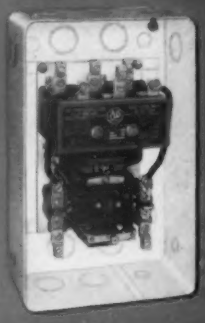
THOUSANDS OF STARTERS are available. They include: combination, reversing, multispeed, and manual and magnetic starters for full- or reduced-voltage starting. Starters are available in all popular NEMA and special enclosures.



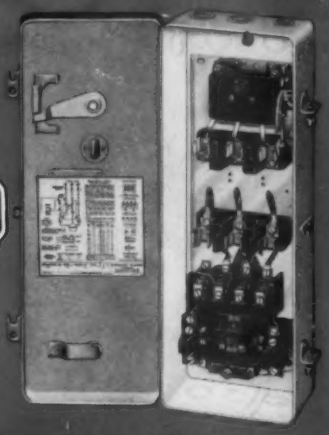
PUSH BUTTONS are furnished for standard, heavy-duty, or oiltight applications. Stations come in all NEMA enclosures.



Bulletin 609 Size 0 manual across-the-line starter with START-STOP buttons and two thermal breakers that automatically stop the motor in case of sustained overload. Available in NEMA Type 1 general purpose, NEMA Type 4 waterproof, and NEMA Type 7 explosion-proof enclosures up to 5 hp, 220 v; 7½ hp, 440-550 v.



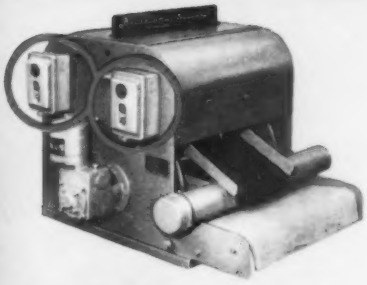
Bulletin 709 Size 3 solenoid across-the-line starter for automatic or remote control. Two thermal relays trip the switch in case of sustained overload. They are available in various NEMA type enclosures up to 300 hp, 220 v; 600 hp, 440-550 v.



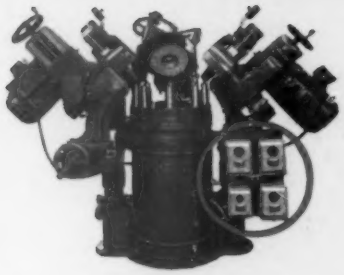
Bulletin 712 combination starter with solenoid starter and manual disconnect in one enclosure. Cover cannot be opened unless disconnect lever is in OFF position.

MANUAL AUTOMATIC COMBINATION

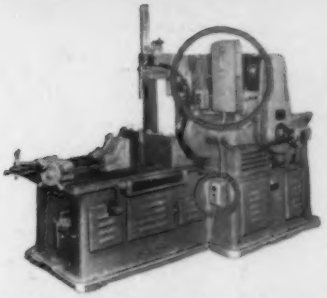
ALLEN-BRADLEY MOTOR STARTERS FOR ALL TYPES OF MACHINES



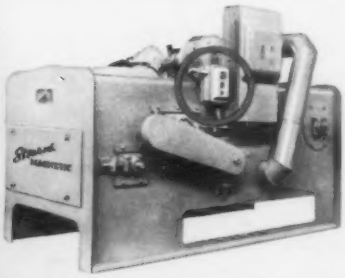
Barnesdril magnetic and fabric filter for removing contaminants from industrial coolants. Equipped with two Bulletin 609 manual starters in general purpose enclosures.



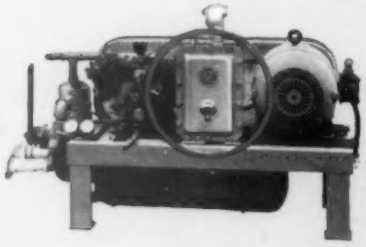
Acme type L-8-L rotary automatic buffing machine for automotive parts. Equipped with four Bulletin 709 solenoid starters with Start and Stop push buttons in starter cover.



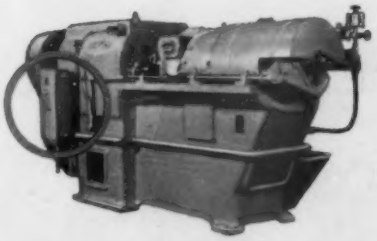
Peerless vertical heavy duty hack saw with Bulletin 712 combination starter for main motor and Bulletin 609 starter for coolant pump. Has oiltight push button station.



Stearns type AM magnetic separator for purifying powdered magnetic materials. Being a dry process, Bulletin 609 manual starter has NEMA Type 1 enclosure.



Loading pump at L.P.G. tank truck terminal equipped with Bulletin 709 solenoid starter in NEMA Type 7 enclosure for safe control in hazardous or explosive atmospheres.



New Britain multiple spindle machine. Equipped with Bulletin 712 combination starter with manual disconnect and solenoid starter in one NEMA Type 1 enclosure.

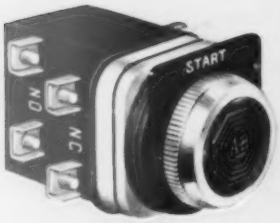
The preference of machinery builders for Allen-Bradley manual and solenoid starters is world-wide. The A-B trade-mark is recognized, everywhere, as the sign of QUALITY in machine tool control. Send for the Allen-Bradley Handy Catalog . . . a 125-page reference guide on trouble free manual and automatic control.

5-55-M

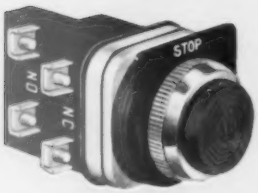
Allen-Bradley Co.
1316 S. Second St.
Milwaukee 4, Wis.

In Canada—
Allen-Bradley Canada Ltd.
Galt, Ont.

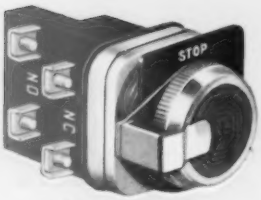
ALLEN-BRADLEY
SOLENOID STARTERS
QUALITY



Start button



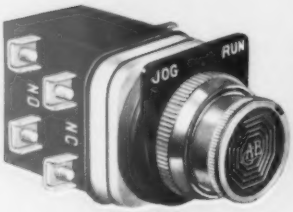
Stop button



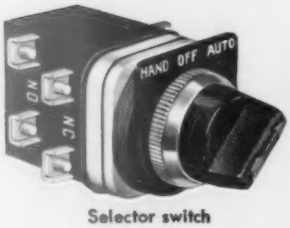
Stop button with locking attachment



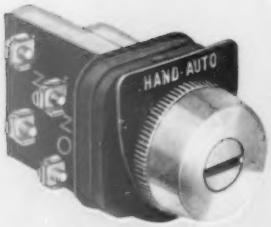
Mushroom head button



Jog button



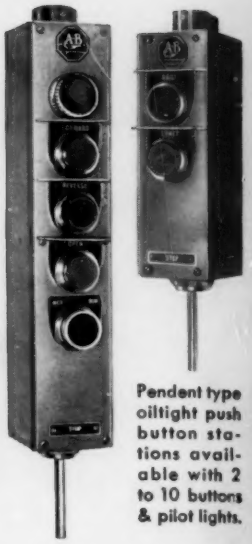
Selector switch



Coin slot selector



Open view of 2-button oiltight master station showing method of mounting



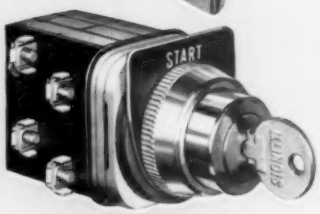
Pendent type oiltight push button stations available with 2 to 10 buttons & pilot lights.

ALLEN-BRADLEY OILTIGHT PUSH BUTTON LINE

that *Satisfies Every Requirement*



Jog button with Start button and Stop & Jog lever



Cylinder lock button



Potentiometer unit



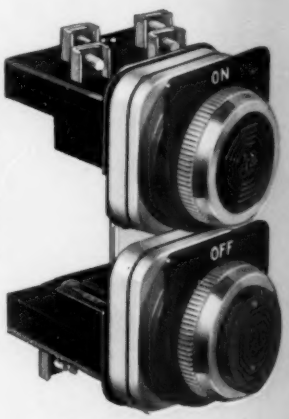
Pilot light Transformer type

Here are a few Allen-Bradley oiltight push button units for machine tools that can be used in endless combinations. All have a flexible, oiltight diaphragm between button and contact block to exclude oil or cutting fluids from contacts. The silver contacts are maintenance free.

Contact blocks may be assembled interchangeably with any type of button. They are available with 1 NO-NC; 2 NO-NC; 4 NO-NC; 2 NO; or 2 NC contacts. Pilot lights of matching design are standard items. See the A-B Handy Catalog for details.

Allen-Bradley Co., 1316 S. Second St.
Milwaukee 4, Wis.

In Canada—
Allen-Bradley Canada Ltd.
Galt, Ont.



Two-button maintained contact button

5-55-BM

A-B Quality

ALLEN-BRADLEY QUALITY

BULLETIN 800T PUSH BUTTONS

ARROW AH HART

MANUAL STARTERS



CATALOG NO. 6808

FOR QUICK, EASY WIRING and SERVICING

For starting and stopping, without overload protection, motors rated up to 2 hp, 600 volts. Supplied in general purpose, flush and weatherproof types. Other Manual Starters are available for push button or toggle operation, with or without overload protection, for 1, 2, 3 or 4 pole use.

Mail coupon for free 12-page catalog section describing the complete line of A-H Manual Starters.

ARROW-HART
INDUSTRIAL CONTROL DIVISION
103 HAWTHORN ST., HARTFORD 6, CONN.

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Quality MOTOR CONTROLS • WIRING DEVICES
ENCLOSED SWITCHES • APPLIANCE SWITCHES

INDUSTRIAL CONTROL DIVISION P
THE ARROW-HART & HEGEMAN ELECTRIC CO.
103 HAWTHORN STREET, HARTFORD 6, CONN.

Please send my copy of the illustrated Catalog Section "A-H Manual Starters."



NAME_____
POSITION_____
COMPANY_____
CO. ADDRESS_____
CITY_____ ZONE____ STATE_____

For More Information Circle No. 714 on Inquiry Card—Page 17



Sylvania reflector lamps combine a powerful source of illumination and efficient reflector in a single sealed-in-glass unit.

The lamp that cuts fixture maintenance to the bone

Now, here's the lamp that doesn't care how dusty—or how old—fixtures may be. It's the Sylvania R52 reflector lamp—the light bulb that supplies its own built-in reflector—does away with fixture cleaning forever! (An external reflector is necessary only to protect lamp from moisture.)

If you want to cut fixture maintenance to the bone—even in dust- and dirt-laden atmospheres—you'll do well to look into this low-cost solution.

Sylvania R52 500- or 750-watt lamps simply screw into existing mogul lamp socket—require no auxiliary equipment. Ask your Sylvania supplier about Sylvania R52 reflector lamps, today.

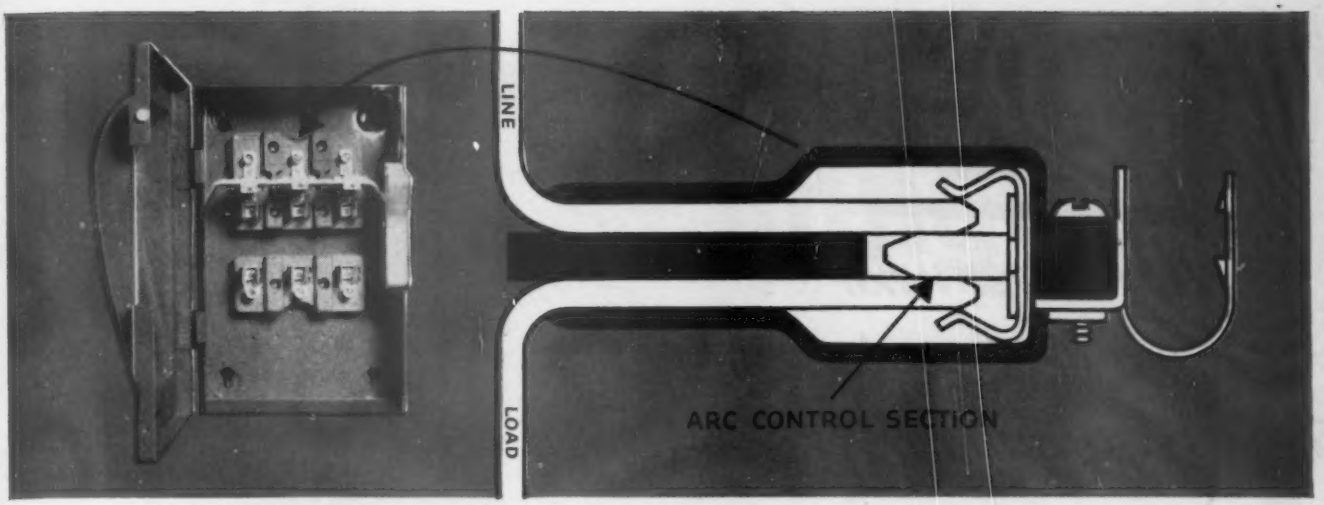
Lighting • Radio • Electronics
Television • Atomic Energy

SYLVANIA ELECTRIC PRODUCTS INC.
Lighting Division, Salem, Mass.
In Canada:
Sylvania Electric (Canada) Ltd.
University Tower Bldg., Montreal

SYLVANIA

...fastest growing name in sight

For More Information Circle No. 715 on Inquiry Card—Page 17



EXCLUSIVE VACU-BREAK PRINCIPLE PREVENTS EXCESSIVE ARCING, which, in ordinary switches, causes burning, pitting and rapid deterioration of contacts. Also, contacts enclosed within the insulated head are protected from dirt and dust.



BULLDOG VACU-BREAK SAFETY SWITCHES ARE

Maintenance -Free!

LONGER SWITCH LIFE! SAFER, MORE EFFICIENT OPERATION!

All safety switches are *not* alike. Here's one important difference: BullDog Vacu-Break® Safety Switches are *maintenance-free.*

Only BullDog Safety Switches incorporate the advanced Vacu-Break arc-control chamber which smothers arcs quickly and safely. Then, too, self-aligning Clampmatic® contacts make bolt-tight connections—engage and release with minimum friction. These exclusive features make the switch perform better—last for years *without maintenance.* You save downtime and repair time—get safety and efficiency second to none. And this means extra dollars in your pocket.

Insist on the *best*—and *longest* performing switches you can buy—BullDog Vacu-Break Safety Switches. Check your electrical contractor, qualified distributor or BullDog field engineer. Or write: BullDog Electric Products Company, Detroit 32, Michigan. ©BEPCO

IF IT'S NEW
. . . IF IT'S DIFFERENT
. . . IF IT'S BETTER . . . IT'S



BULLDOG
ELECTRIC PRODUCTS COMPANY
A Division of I-T-E Circuit Breaker Company

Export Division: 13 East 40th Street, New York 16, New York. ***In Canada:*** BullDog Electric Products Company (Canada), Ltd., 80 Clayson Road, Toronto 15, Ontario.

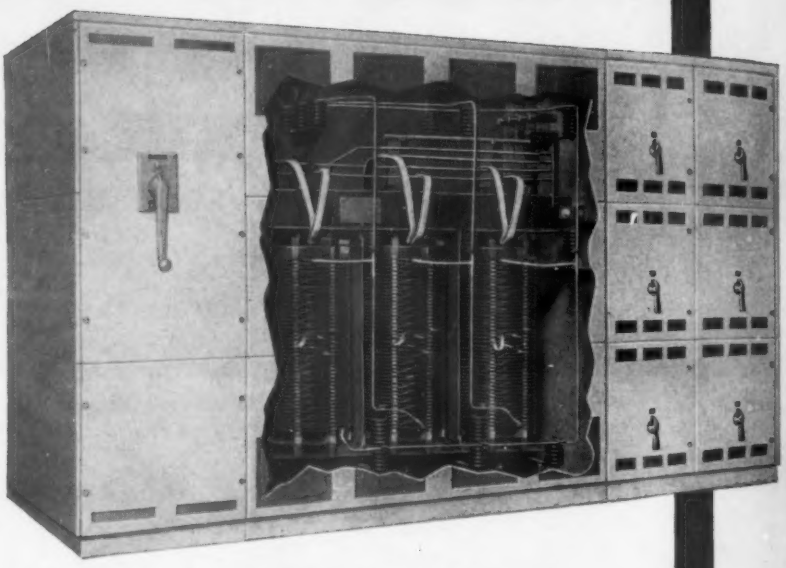
For More Information Circle No. 717 on Inquiry Card—Page 17

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TRANSFORMERS
... the choice of leaders in industry

No matter what your load-center requirements...

you can specify a

Wagner



SUBSTATION TRANSFORMER

PREDESIGNED to meet your needs

- √ **save shipment time . . .**
- √ **save job engineering costs . . .**
- √ **get full Wagner Quality with switchgear of your choice**

Wagner "Predesigned" standard unit substation transformers are carefully engineered to meet *heavy* industrial demands—they are not designed for minimum duty only. Predesigning completely eliminates individual job engineering time . . . reduces your costs . . . and permits quick delivery.

When you specify Wagner "Predesigned" transformers you get the advantages of a proved design in a completely assembled transformer, tested at the Wagner factory. They are built in standard ratings which are coordinated with the specifications of all unit substation builders.

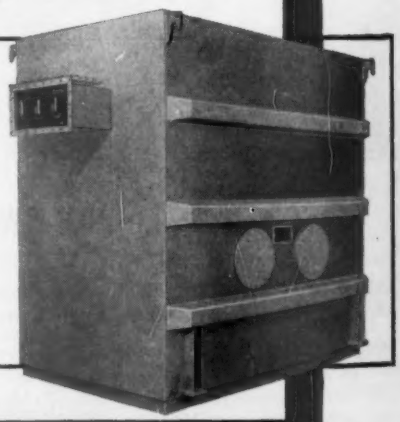
Wagner builds a complete line of substation transformers—open, ventilated Dry-type, Oil-Filled, Noflamol, and sealed-dry-type Nitrogen Filled—in ratings from 112½ through 2000 kva, 15 kv and below, to handle practically any distribution requirements.

You can specify the Wagner Transformer that exactly meets your load-center distribution requirements—be assured of full Wagner Transformer Quality—and gain a substantial advantage in delivery time and in cost.

Investigate the many advantages of specifying Wagner "Predesigned" Unit Substation Transformers for your next load-center installation. Consult the nearest of our 32 branches offices, or write for Wagner Bulletin TU-205. It gives full information on Wagner Unit Substation Transformers for industrial power distribution systems.

SEALED-DRY-TYPE NITROGEN FILLED

Wagner's nitrogen-filled transformers offer many advantages in maintenance and safety. They are relatively unaffected by water—they require only a minimum of maintenance—they present no cleaning problems, even in dust-filled areas. They have exceptionally high overload capacity, and are completely fire and explosion proof. Available in ratings up to 2000 kva.



Wagner Electric Corporation
EST. 1891

WAGNER ELECTRIC CORPORATION
6360 PLYMOUTH AVE., ST. LOUIS 14, MO., U.S.A.

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

ELECTRIC MOTORS
TRANSFORMERS
INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS—AIR AND HYDRAULIC

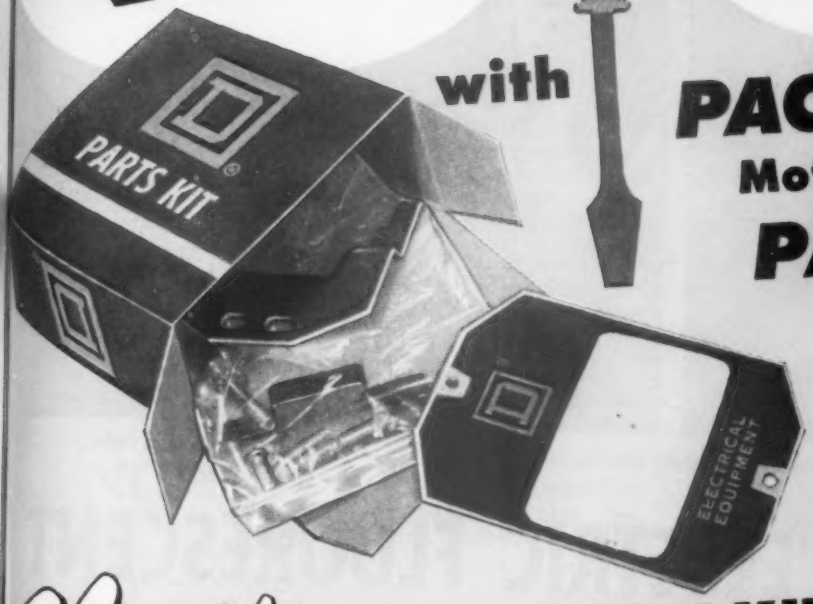
T55-1

For More Information Circle No. 718 on Inquiry Card—Page 17

For More Information Circle No. 719 on Inquiry Card—Page 17→

Qwik Change

with **PACKAGED Motor Starter PARTS!**





New PUSH BUTTON KIT

OTHER KITS...

- Selector Switches
- Interlocks
- Replacement Parts
- Contacts
- Coils
- Overload Relays



EASY to Identify!

Easy-to-read catalogs, simplified motor control and overload relay selectors, illustrated service bulletins...these all combine to assure *quick changes* through easy parts identification.

EASY to Buy!

Conveniently packaged and labeled conversion parts are immediately available "off-the-shelf" from nationwide network of authorized Square D electrical distributors.

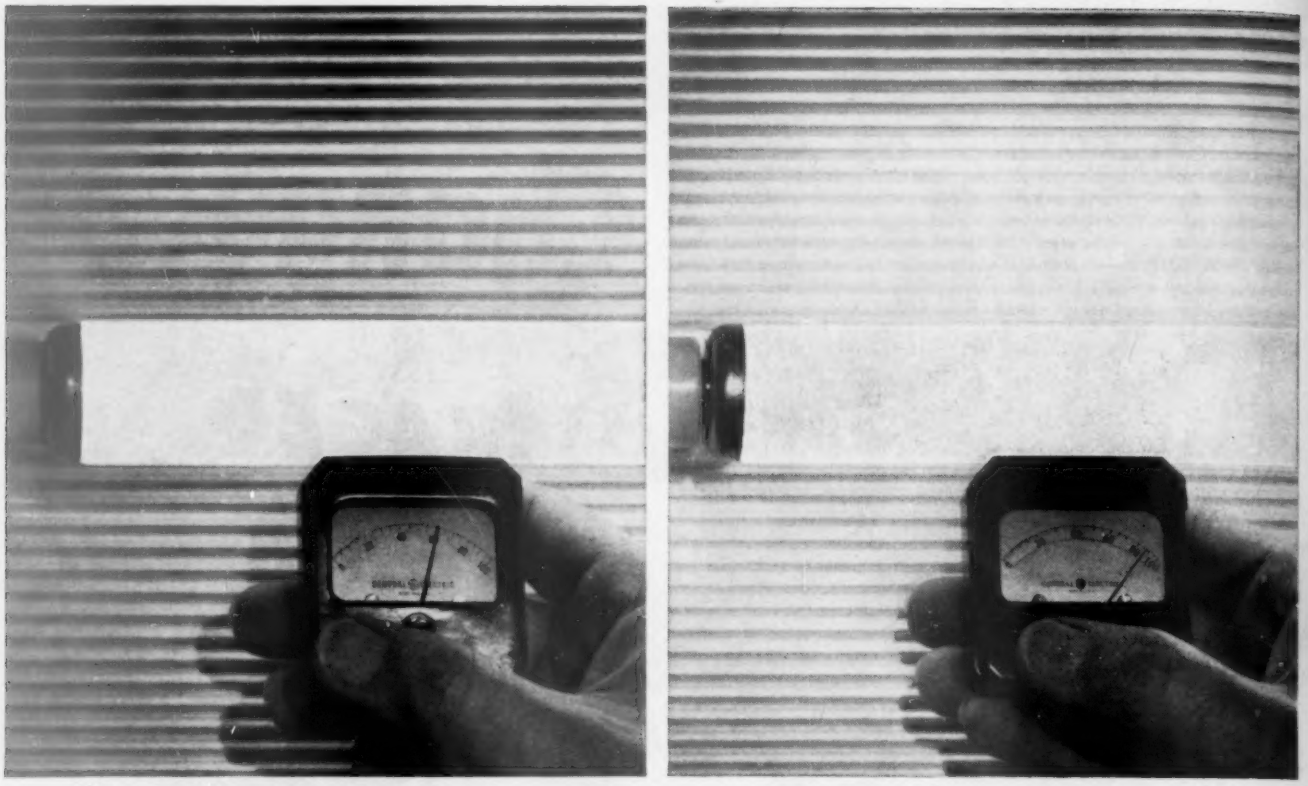
FASTER to Install!

Conveniently packaged parts can be installed using only a screw driver and without disturbing any wiring.

Write for Bulletin 9999. Address Square D Company, 4041 North Richards Street, Milwaukee 12, Wisconsin.

ASK YOUR ELECTRICAL DISTRIBUTOR FOR SQUARE D PRODUCTS

SQUARE D COMPANY



Photos above show relative difference in light output of regular slimline, left, and New High Output Rapid Start lamp, right.

NEW GENERAL ELECTRIC FLUORESCENT LAMP GIVES ⅓ MORE LIGHT THAN ANY PREVIOUS FLUORESCENT

LIGHTS ALMOST INSTANTLY—General Electric announces the most important advance in fluorescent lighting in 10 years: the new High Output Rapid Start fluorescent lamp. The 96-inch High Output lamp gives 36% more light than the most powerful G-E fluorescent lamp previously available.

For new installations, General Electric High Output lamps offer this ⅓ bonus of light without increasing the number of fixtures or maintenance costs.

This big increase in light, with no increase in lamp size, has been achieved through a special cathode developed by General Electric which permits a boost in lamp wattage to 100. Because the cathode is of the famous General Electric triple coil design, these Rapid Start lamps light up almost instantly. General Electric High Output lamps have a rated life of 7,500 hours, the same as all General Electric general lighting fluorescent lamps.

A new G-E base and socket design protects the lamp contacts by recessing them. A simple push-pull sets the lamp in its fixtures.

HAS VARIETY OF USES

The new General Electric High Output fluorescent lamp is especially suited for use in areas with high ceilings, in factories, warehouses, offices and stores. Also in store windows, showcases and other places where you want higher lighting levels in keeping with the modern trend. New fixtures designed for the G-E High Output lamp will soon be available from a number of lighting fixture manufacturers.

For information, write to Lamp Division, General Electric Company, Dept. 482-P-6, Nela Park, Cleveland 12, O.

Progress Is Our Most Important Product

GENERAL ELECTRIC

For More Information Circle No. 722 on Inquiry Card—Page 17

For More Information Circle No. 723 on Inquiry Card—Page 17→

Save Money, Maintenance and Man-hours!

GET YOUR DC FROM AC

with dependable, long-life

Federal

SELENIUM RECTIFIER

Power-Converting EQUIPMENTS

NO costly, bulky, moving equipment to buy . . . no expendable parts to replace frequently . . . virtually no maintenance! No wonder Federal's compact, rugged, always-dependable Selenium Rectifier Equipments are the growing answer to DC output requirements . . . for industrial power, battery charging and hundreds of other DC applications.

Federal Equipments are ready to connect to your AC source . . . ready to deliver uninterrupted DC power wherever you need it and whenever you need it!

Powered by Federal's completely inert selenium rectifiers, the life of Federal Equipments is practically *unlimited*. All are conservatively rated . . . with a wide margin of safety to withstand momentary heavy overloads.

If the DC output you need is not in Federal's line of standard power supply equipment, Federal will design and build to meet your specific requirements. Tell us the rating you need . . . write today to Dept. E-234A

Federal

A DIVISION OF IT&T

Federal Telephone and Radio Company

A Division of INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

COMPONENTS DIVISION • 100 KINGSLAND ROAD • CLIFTON, N. J.

In Canada: Standard Telephones and Cables Mfg. Co. (Canada) Ltd., Montreal, P. Q.
Export Distributors: International Standard Electric Corp., 67 Broad St., New York

For More Information Circle No. 725 on Inquiry Card—Page 17

POWER SUPPLIES—

Industrial, Military, Laboratory

Chucks, brakes, clutches, screens, separators, drums, pulleys, lifting magnets, relays, circuit-breakers, solenoids, DC motors—these are only a few of the wide variety of applications now being successfully served by Federal Power Supplies.

Federal's FTR-3152-AS
Typical of the many standard types ready for shipment
Rated:
115/230 volts, 4.4/2.2 amps.
AC Input: 220/440 volts
3-phase, 50/60 cycles



REGULATED POWER SUPPLY

The FTR-3128-BS is designed to meet the exacting requirements of the aviation industry for a regulated and filtered DC power supply useful for laboratory and testing purposes. Front panel control knob enables continuous selection of any DC output voltage between 22 and 30 volts.

Federal's FTR-3128-BS
Typical of the many standard types ready for shipment
Rated:
22/30 volts, 0/10 amps.
AC Input: 105/125 volts
1 phase, 58/62 cycles



MAGNETIC AMPLIFIERS

Presently used in a wide range of successful applications for Industry and the Armed Forces, such as:

- Voltage Control
- Current Control
- Speed Control
- Position Control
- Temperature Control
- Photoelectric Control
- Counting
- Automatic Regulation

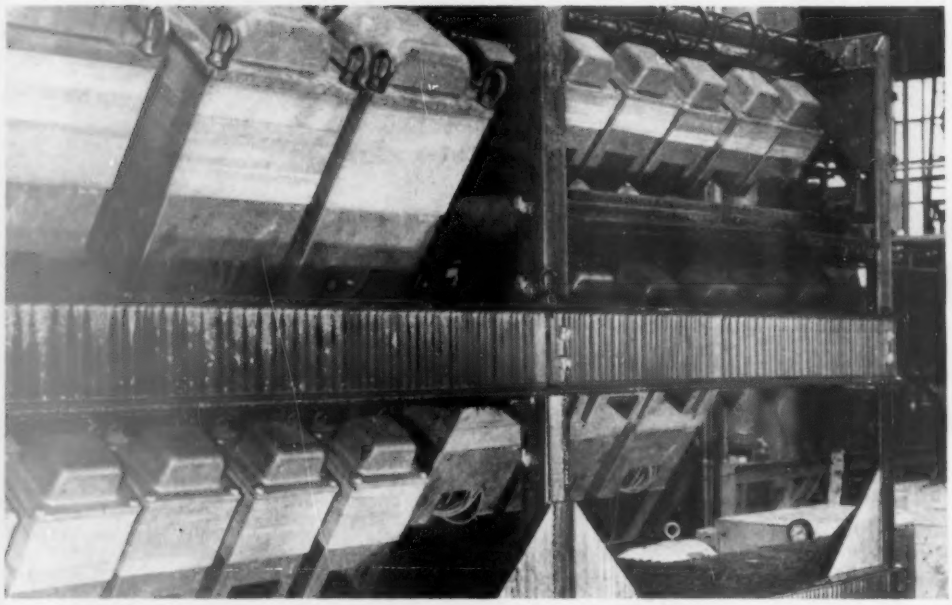
Federal Selenium Rectifiers, in partnership with the right magnetic components, provide Magnetic Amplifiers outstanding for:

Stability • Accuracy • Long Life
High Gain • Fast Response • Low-cost Operation

For More Information Circle No. 726 on Inquiry Card—Page 17→

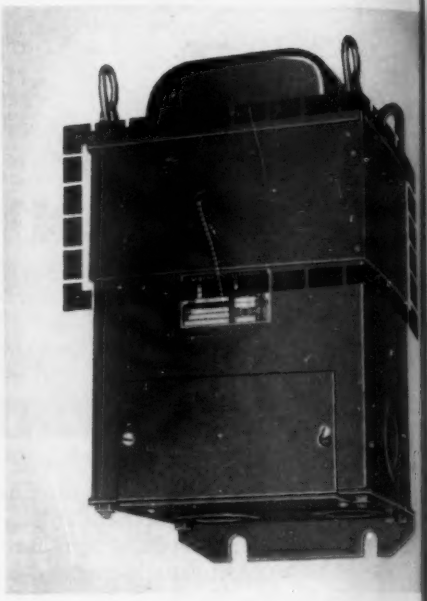
DRY-TYPE TRANSFORMERS

Standard lines cover wide range of unique design features; Meet your



Longer life . . .

TYPE M TRANSFORMERS perform longer because the entire core and coil assembly is thoroughly impregnated by an electronically controlled vacuum pressure process which removes all moisture, decreases electrical losses, combats corrosive atmospheres. Varnish insulation penetrates the entire unit, and not merely the exposed surface.



Greater operating efficiency . . .

TYPE M TRANSFORMERS. Design feature exposes a large area of the core surface permitting more efficient cooling. Heat is dissipated by radiation as well as convection.



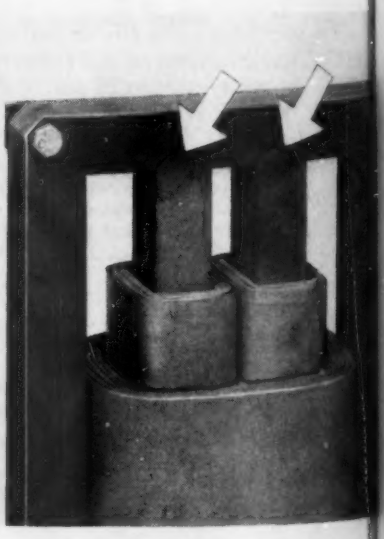
Precalibrated . . .

VOLTAGE STABILIZERS calibrated at the factory. Output voltage is stabilized within less than ±1%, for all input voltage variations from 95 to 130 (190 to 260) volts. Adjustments of voltage level are held within ±1% of nominal, the majority within ±½% of nominal for normal operating temperatures.



Speedier installation . . .

MERCURY LAMP TRANSFORMERS. Nameplate covers large wiring compartment. This functional positioning speeds installation and maintenance by putting complete easy-to-read wiring instructions and diagrams right where they are needed. Bolt on left holds plate to case, helps prevent its loss.



Economical operation . . .

SATURABLE REACTORS permit more precise control of load voltages because of a tongue-joint construction in core arrangements up to 7.5 kva. It reduces chances of damage to control components; allows virtually complete balancing out of a-c flux to eliminate induction of a-c voltage in the d-c coil.



FOR BETTER SERVICE... FASTER DELIVERY
CALL YOUR RCA TUBE DISTRIBUTOR

He carries a complete line of RCA tubes, batteries and test equipment for broadcasting, communications, and industry.

Power Tubes: A wide line—including triodes, beam-power types, rectifier tubes, thyratrons, and ignitrons for industrial control, laboratories, communications, amateur service, AM, FM, TV broadcasting.

Cathode-Ray Tubes: A variety of screen sizes and phosphors, for TV studio and oscillograph applications.

Phototubes: A comprehensive line of gas and vacuum types for industrial and laboratory use in light-actuated devices. Also multiplier phototubes for applications, such as scintillation counting, where extremely high sensitivity is important.

Special-Purpose Tubes: For use in laboratory instruments, TV studio cameras, computers, and special communications and industrial equipment.

Receiving-Type Tubes: For AM-FM-TV broadcasting, test instruments, industrial control, communications and amateur service.

Batteries: A broad line of industrial types to meet the needs of industrial control, telephone, general utility, laboratory, and field applications.

Test Equipment: A high-quality line of test instruments and general and special purpose probes, designed to meet the exacting requirements of virtually all test applications in laboratory and production-line work.

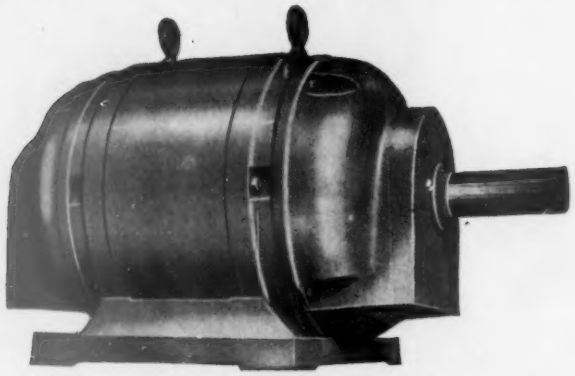
For accurate information and quick, dependable delivery on any or all of these products, see your local RCA Tube Distributor. You'll find his name listed in the *Electronics* section of The Thomas' Register.

RADIO CORPORATION of AMERICA
ELECTRON TUBES **HARRISON, N.J.**

For More Information Circle No. 728 on Inquiry Card—Page 17

VALLEY
BALL BEARING MOTORS

STAY ON THE JOB...LONGER

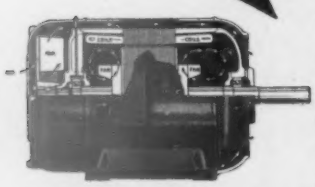


When specifying the power unit for your machinery, bear these *exclusive* VALLEY features in mind!

- Specifically designed for 'round-the-clock' duty in high temperatures.
- Drip proof and splash proof, semi-enclosed construction protects motor from harmful liquids and flying particles.
- Fully enclosed ball bearings reduce friction 75% to provide a saving in power.
- Built in ½ to 75 horse power sizes for wide adaptability in your power planning.

VALLEY Motors, *stay on the job longer*, even under heavy and continuous power demands. Thus for economical power that will last the life of your equipment — always specify VALLEY.

AIR COOLED



TOTALLY ENCLOSED FAN COOLED

The latest development in Air-Cooled, Ball Bearing motors. Totally enclosed to assure protection against dripping or splashing liquids, metal chips, and damaging dust. 2 to 60 h. p.

Write For Descriptive Literature.

VALLEY
ELECTRIC CORPORATION
4221 FOREST PARK BLVD. • ST. LOUIS 8, MO.

For More Information Circle No. 729 on Inquiry Card—Page 17

Does that new design call for a special transformer?

. . . One that's special in coil design or frequency response? Is insulation a problem? or weight? or size?

You may find the answer in our design department, staffed by engineers who are experienced not only in transformer design but also in the communications systems. They approach your problem with a knowledge of your over-all circuit requirements, and design a transformer that meets *all* your needs *exactly*.

And when the transformer has been proved, we have streamlined facilities to produce it in the quantity you need.

When you have a transformer problem, call on

CALEDONIA
ELECTRONICS AND TRANSFORMER CORPORATION

Dept. P-6, Caledonia, N. Y.

For More Information Circle No. 730 on Inquiry Card—Page 17

TO PURCHASING DEPARTMENT PERSONNEL

AT THE PRESENT you are reading a copy of Purchasing Magazine most likely addressed to the head of your department . . . or an assistant.

YOU WELL KNOW that the contents of this publication definitely helps you do a better purchasing job.

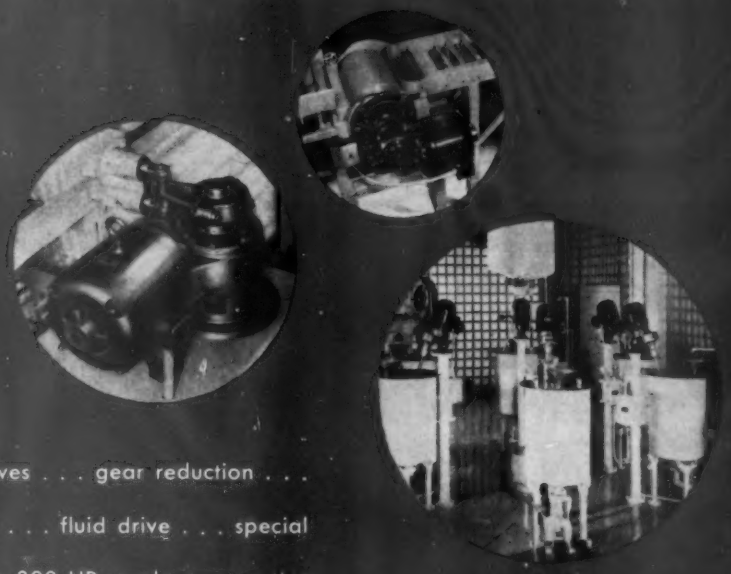
KEEPING YOU INFORMED on trends and new ideas, Purchasing helps you prepare for advancement within your company.

YOU SHOULD have your own, personal copy to completely digest the articles—and to have your own file copies always available for immediate reference.

TO HELP YOU get your own copy, we have inserted in this issue of PURCHASING, a special order blank. It is for YOUR use! Tear it out . . . fill in your name . . . and mail, postage free, to PURCHASING MAGAZINE.

WE SHALL then enter a one year subscription for you and bill you (or your company) at a later date —at the one year rate of $4.00.

MAIL IT TODAY!



What do you need in your electric motor drives . . . gear reduction . . . electric brakes . . . variable speed operation . . . fluid drive . . . special mountings or does a standard motor (like the 200 HP synchronous motor shown below) best suit your needs? Whatever it is, check with Master first. We offer you the widest selection of electric motor drives in the nation.

In thousands and thousands of ratings, ⅛ to 400 horsepower . . . in open, enclosed, splash proof, fan cooled, explosion proof . . . horizontal or vertical . . . for all phases, voltages and frequencies . . . in single speed, multi-speed and variable speed types . . . with or without flanges or other special features . . . with 5 types of gear reduction up to 430 to 1 ratio . . . with either magnetic or dynamic type electric brakes . . . with fluid-drive . . . with mechanical or electronic variable speed units . . . and for every type of mounting . . . Master has them all and so can be completely impartial in helping you select the one best power drive for you.

THE MASTER ELECTRIC COMPANY • DAYTON 1, OHIO

it's easy to get the right results



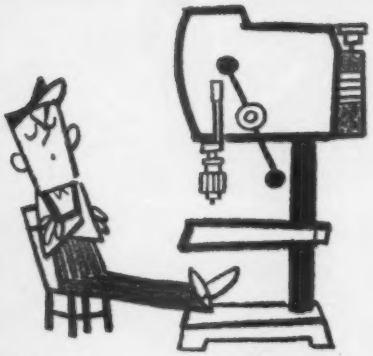
MASTER

ELECTRIC MOTORS

10 reasons why it's wise to buy



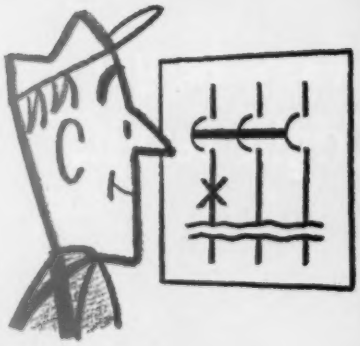
1 They offer the highest degree of personnel protection. Live parts are covered, even when enclosure cover is open.



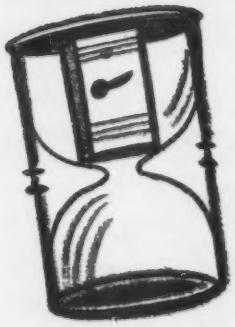
2 They reduce production downtime. No time is lost locating or replacing fuses. Breaker can be reset as soon as fault is cleared.



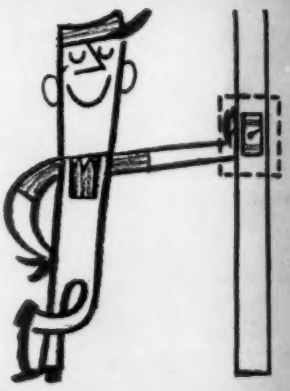
3 They eliminate replacement costs and maintenance. First cost is the last. No replacement parts or fuses are needed.



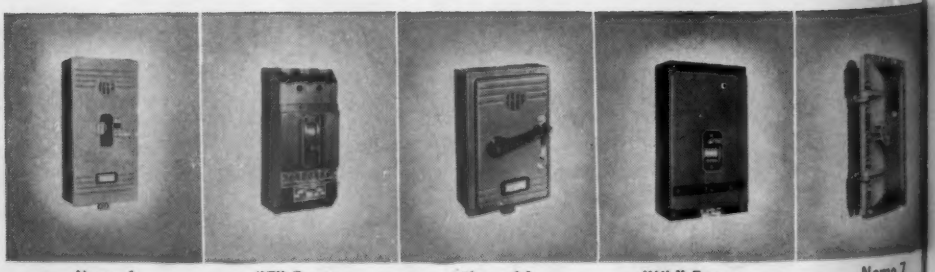
6 They prevent possible single phasing when a fault occurs. All poles trip simultaneously.



7 They safely carry continuous current rating indefinitely. Breakers must carry 100% of load indefinitely without exceeding temperature limits.



8 They save mounting space. Require less space than same rated enclosed fusible switch.



Nema 1 Enclosure | "F" Frame Breaker | Nema 1A Enclosure | "KL" Frame Breaker | Nema 7 Enclosure

←For More Information Circle No. 735 on Inquiry Card—Page 17



CUT THE COST

of "keeping things moving"



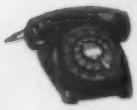
Money "goes down the drain" quickly when production slows or stops anywhere along the line. You can prevent production bottlenecks with *your own* "inside" telephone system!

The P-A-X Business Telephone System is a separate network of dial telephones—*owned* (not rented) to serve every part of your plant. Through P-A-X, executives and production supervisors can gather facts and issue instructions in seconds, to anticipate *and prevent* expensive roadblocks in production before they happen. P-A-X service is "person-to-person" contact in its fastest, most convenient form—reduces paperwork, saves time, *keeps things moving!*

Thousands of companies find that P-A-X is an investment that pays off, every working day. For an objective case study of P-A-X at work in a plant much like yours, write: Automatic Electric Sales Corporation, (HAymarket 1-4300), 1033 West Van Buren Street, Chicago 7, Illinois. In Canada: Automatic Electric Sales (Canada) Ltd., Toronto. *Offices in principal cities.*



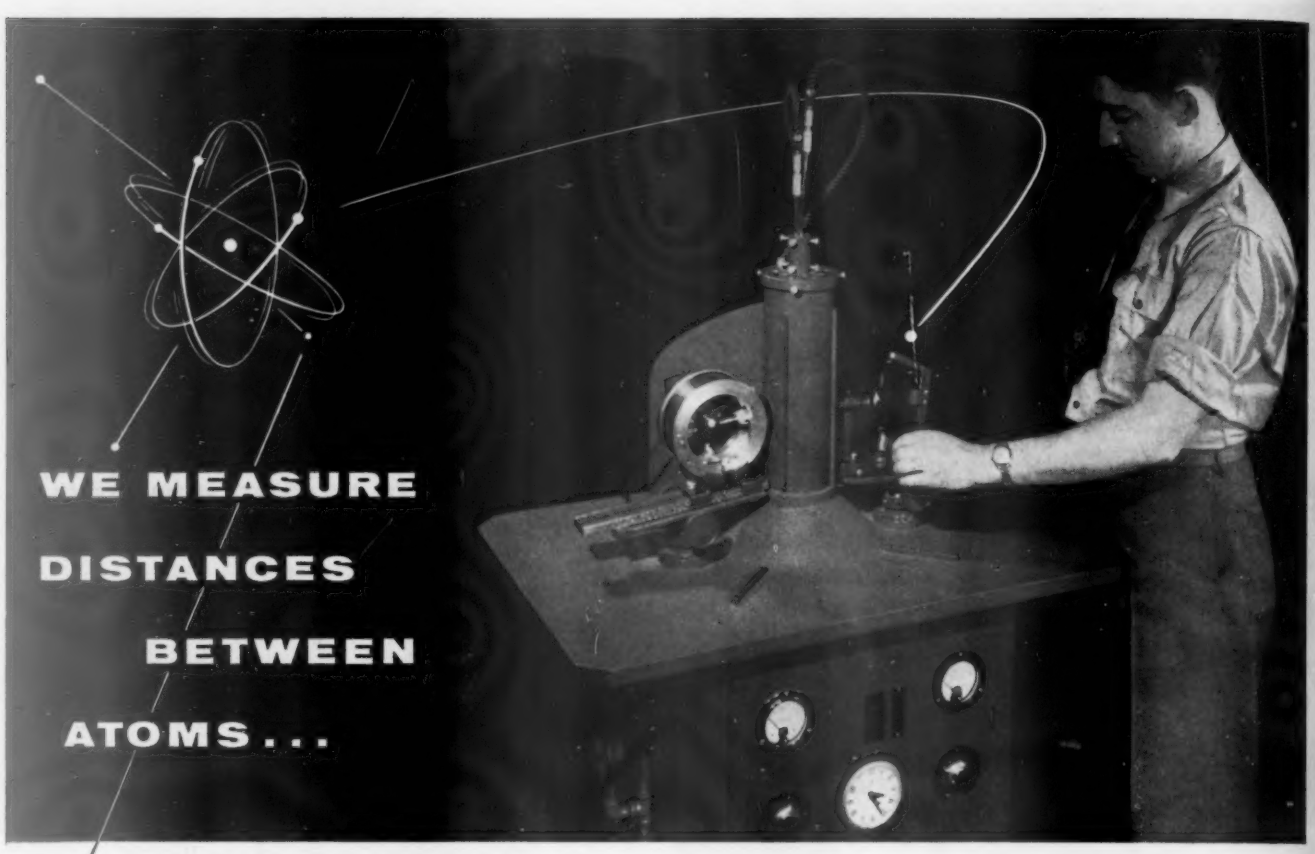
Learn how a leading manufacturer uses P-A-X to improve production control—and cut costs. Write for a copy of this illustrated case study today.



AUTOMATIC ELECTRIC

ORIGINATORS OF THE AUTOMATIC TELEPHONE

For More Information Circle No. 737 on Inquiry Card—Page 17

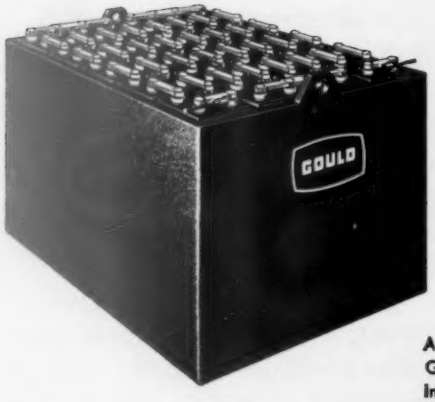


TO GIVE YOU *Advance Design* BATTERIES!

The X-Ray Diffraction Unit shown above is one of the few instruments of its kind being used in basic battery research. It identifies complex metallic compounds which cannot be identified practically by chemical means. It does this by actually indicating on film the distances between atoms, enabling Gould engineers to study atomic structure.

This instrument . . . this research . . . is revealing hitherto unknown facts about the relationship between molecular activity and battery performance . . . pointing the way toward more powerful, longer lasting active materials. That's why you get *better* batteries when you buy Gould!

For the full story on Gould Research, send for Booklet 749.



America's Finest!
GOULD
Industrial
Truck Batteries

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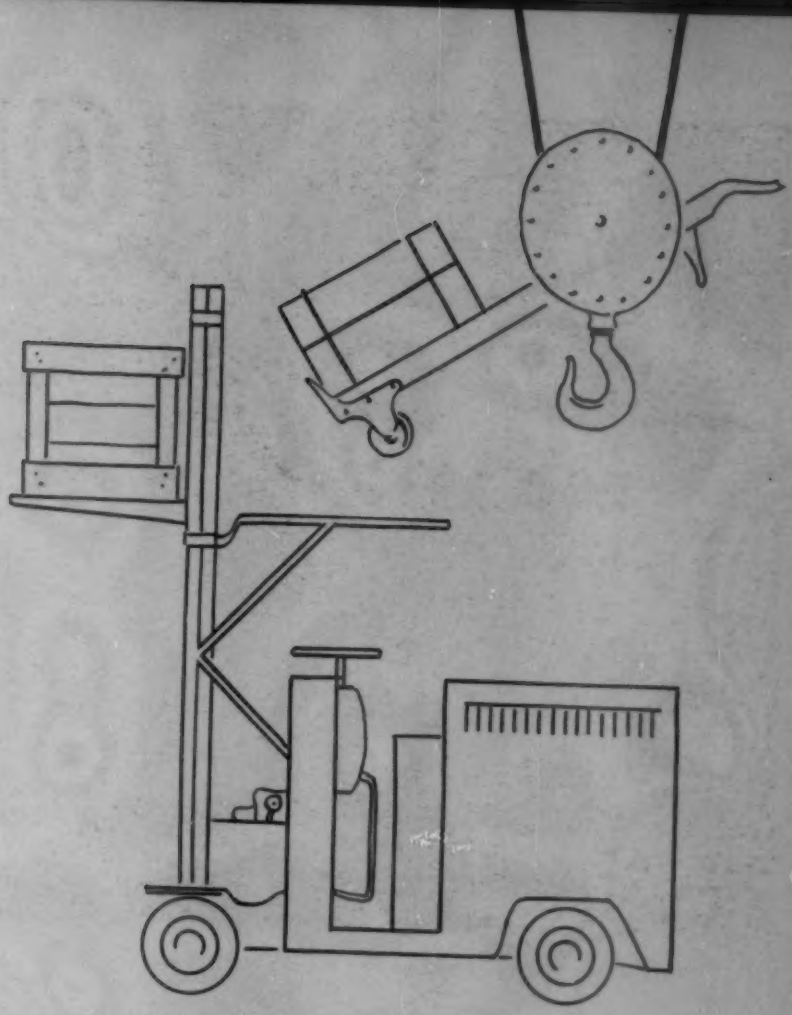
GOULD
Batteries

GOULD-NATIONAL BATTERIES, INC.
TRENTON 7, N. J.

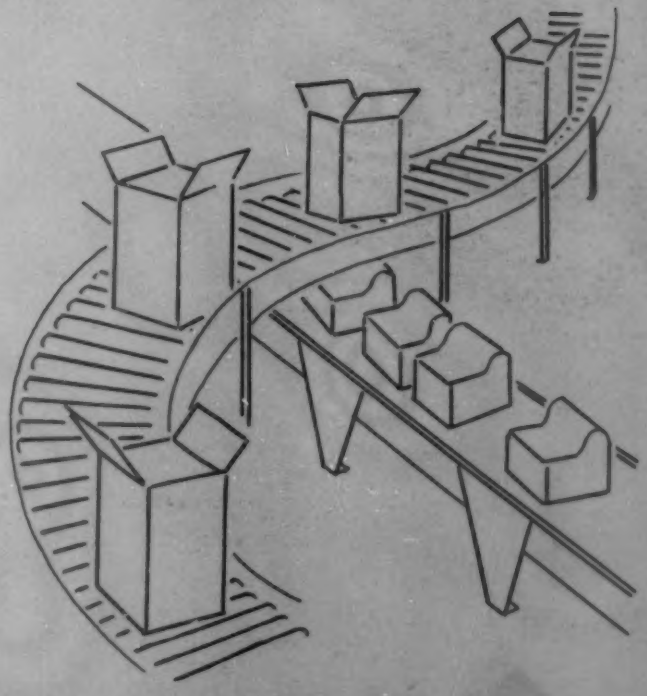
"BETTER BATTERIES THROUGH RESEARCH"

Always Use Gould-National Automobile and Truck Batteries

For More Information Circle No. 738 on Inquiry Card—Page 17



MATERIALS HANDLING





Check Your MATERIALS HANDLING VQ*

	YES	NO
1. Do we use power equipment whenever possible for transporting and lifting?		
2. Are we palletizing incoming shipments to facilitate handling in our own operations?		
3. Are we getting maximum storage efficiency and freeing floor space for productive work with stackers and multiple storage units?		
4. Do we call in representatives of materials handling firms to get their expert help on our problems?		
5. Do we know what materials handling costs us and are we taking steps to reduce this cost?		
6. Will overhead conveyors alleviate storage problems in our plant?		
7. Have we considered the merits of special handling attachments for our fork trucks?		
8. Can we use portable conveyors at critical points to break bottlenecks?		
9. Are we using hand trucks when power trucks can do the job faster and more efficiently?		
10. To eliminate handling, have we considered having suppliers package in standard count containers?		
11. Do we have a materials handling committee; is purchasing represented on it?		
12. Is our materials handling equipment standardized as much as possible to simplify maintenance and permit maximum utilization?		
13. Do we keep abreast of new developments in the materials handling field?		
14. Have we weighed the pros and cons of leasing vs. buying materials handling equipment?		
15. Do we know the comparative advantages of various types of stackers and how they compare with hand equipment?		

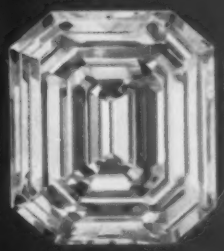
*Value Quotient



Here is perfection!

ROEBLING high carbon wire is unsurpassed for industry today. Roebling wire is absolutely true to specifications ...absolutely uniform in gauge and finish. Manufacturers who try Roebling wire once, become Roebling customers from then on.

You *pay* for the best when you buy high carbon wire. Make sure that you *get* it! Always specify Roebling. John A. Roebling's Sons Corporation, Trenton 2, N. J.



The Jonker, world's largest emerald-cut diamond.

ROEBLING

A subsidiary of The Colorado Fuel and Iron Corporation

BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON, 51 SLEEPER ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, TRENTON 2, N. J.

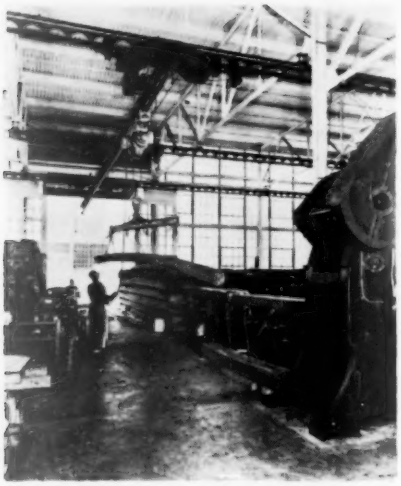
Materials Handling . . .



Drum Carriers Cut Loading Time 83%

Sun Oil Co., of Philadelphia, Pa., uses Towmotor fork lift trucks equipped with drum carriers to palletize 4-drum units. Standard industrial trucks then move them to storage or shipping points. The company's over-all loading costs have been reduced 83%. Among time-saving records achieved are the loading of a barge with drums in 16 man-hours as against 96 man-hours by a previous system, and loading freight cars with 63% less man-hours.

CIRCLE NO. 266 ON INQUIRY CARD—PAGE 17



Crane Helps Save $5000 Yearly In Steel Purchase Costs

A 5-ton 50-foot span motorized transfer crane made by Cleveland Tramrail is helping Kortick Manufacturing Co., San Francisco, save $5000 a year on steel purchase costs. The unit moves steel in larger quantities and heavier bundles, which give the steel buyer a price advantage. In addition, it cuts unloading time two hours per car. The crane is shown here interlocked with a track extending through doorway over railroad tracks.

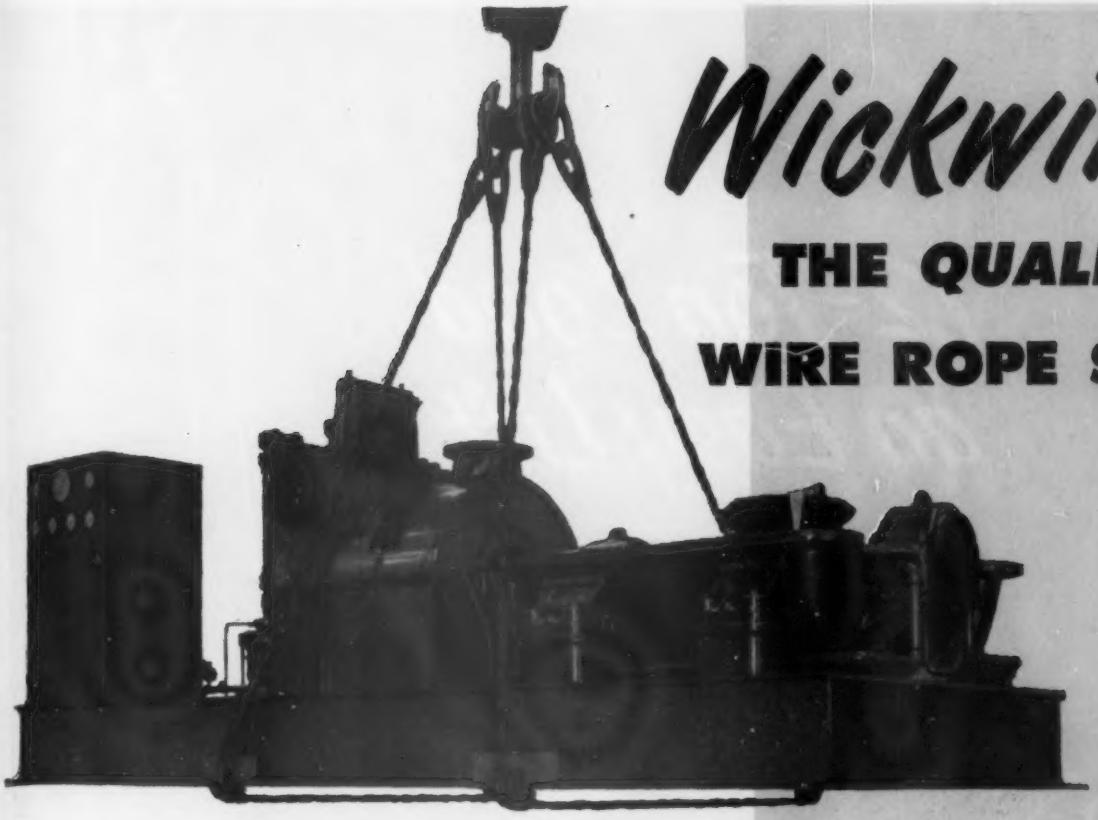
CIRCLE NO. 267 ON INQUIRY CARD—PAGE 17



48 Man-Hours a Day Saved Handling Bags

A lift truck, equipped with a load grab and bag handling arms is used by Vida Sugars, Inc., Loreauville, La., to load filled bags of sugar from the warehouse into the freight car. Bags are placed in rows end up. The Hyster lift truck grabs 2 bags lengthwise, hauls them to freight car and stacks them six across and seven high. Previously, 5 men required 6 hours to load each car with 300 bags. The lift truck, piling bags 7 high at rate of 350 in 3 hours, saves 48 man-hours per day.

CIRCLE NO. 268 ON INQUIRY CARD—PAGE 17



Wickwire!

THE QUALITY WIRE ROPE SLING

A sling is only as good as the wire rope from which it is made. Wickwire Wire Rope Slings are made from Wickwire Rope, the product of a company whose history goes back well over a century. This long experience in the design and manufacture of quality wire rope is applied to the fabrication of Wickwire Wire Rope Slings, making them worthy of the name "Wickwire." This means that Wickwire stands behind *every* sling it sells.

You benefit from our thorough knowledge and experience when you use Wickwire Wire Rope Slings. You are assured of materials of the highest quality. And in using wire rope slings, there can be no compromise with quality. Too much is at stake—the safety of the handling crew, possible damage to costly materials, and loss of productive time.

When you specify Wickwire Wire Rope Slings you get product responsibility that assures safe, efficient and economical service. Wickwire Slings are made from wire rope and fittings with matched rated capacities.

SEND FOR YOUR WICKWIRE SLING CATALOG TODAY

Just write us on your company stationery and we'll rush your copy to you—*free of charge and postpaid.* Our 120-page manual gives complete up-to-the-minute data, with hundreds of explanatory illustrations. It has a tough permanent cover, is fully indexed and handy to use. You'll find it indispensable for quick reference and helpful information when specifying the Wickwire Sling you need for the best in sling service.

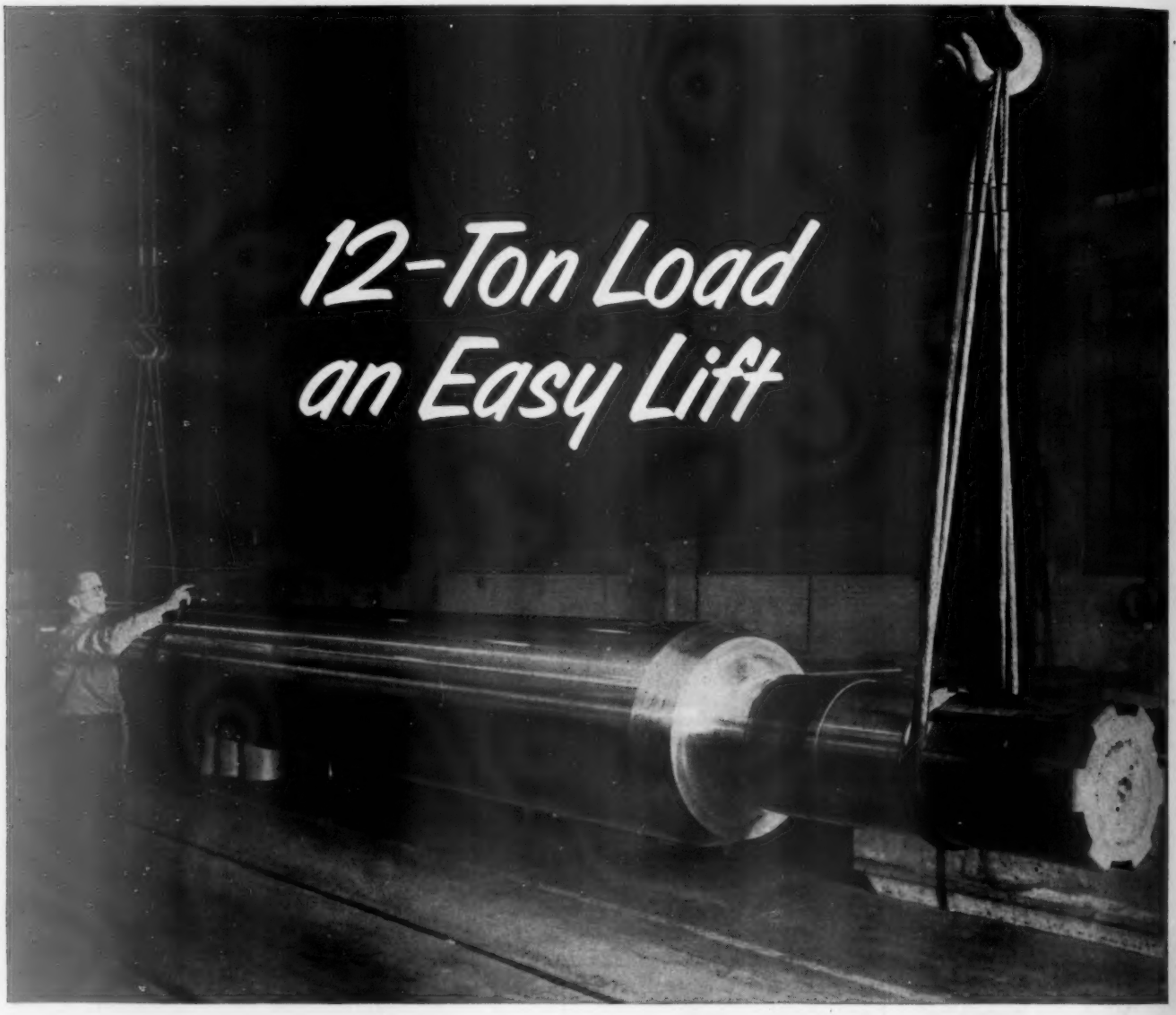


2961

WICKWIRE
WIRE ROPE SLINGS
PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

THE COLORADO FUEL AND IRON CORPORATION—Abilene (Tex.) • Denver • Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa
PACIFIC COAST DIVISION—Los Angeles • Oakland • Portland • San Francisco • Seattle • Spokane.
WICKWIRE SPENCER STEEL DIVISION—Boston • Buffalo • Chattanooga • Chicago • Detroit • Emlenton (Pa.) • New Orleans • New York • Philadelphia

For More Information Circle No. 743 on Inquiry Card—Page 17



for Bethlehem Torpedo Slings

Here's a load that couldn't be tossed over anybody's shoulder. It's a whopping big forged-steel roll that is 21 ft long and weighs more than 12 tons.

Rolls like this are magnificent pieces of workmanship, and they are handled with extreme care. The slings, of course, bear a heavy responsibility. Those shown here are Bethlehem Torpedos, the ones around the roll being covered with an outer jacket of neoprene.

Torpedo slings are much in demand for lifts of this nature. They are so strong and reliable. They are so flexible and easy to bend around the loads.

Many shop men consider the Bethlehem Torpedo one of the finest slings ever developed. It is a sling with several advanced features of design, including a special method of fabricating the eye-loops. Sturdy collars of steel add to the holding power of the loops, so that the sling has greater strength than the ordinary spliced type.

You can now get Torpedos in sizes ranging from ¼ in. to 2 in., inclusive. Many are available from stock; but if yours must be made up on special order, the job can be handled very quickly. Ask our nearest office for full details.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

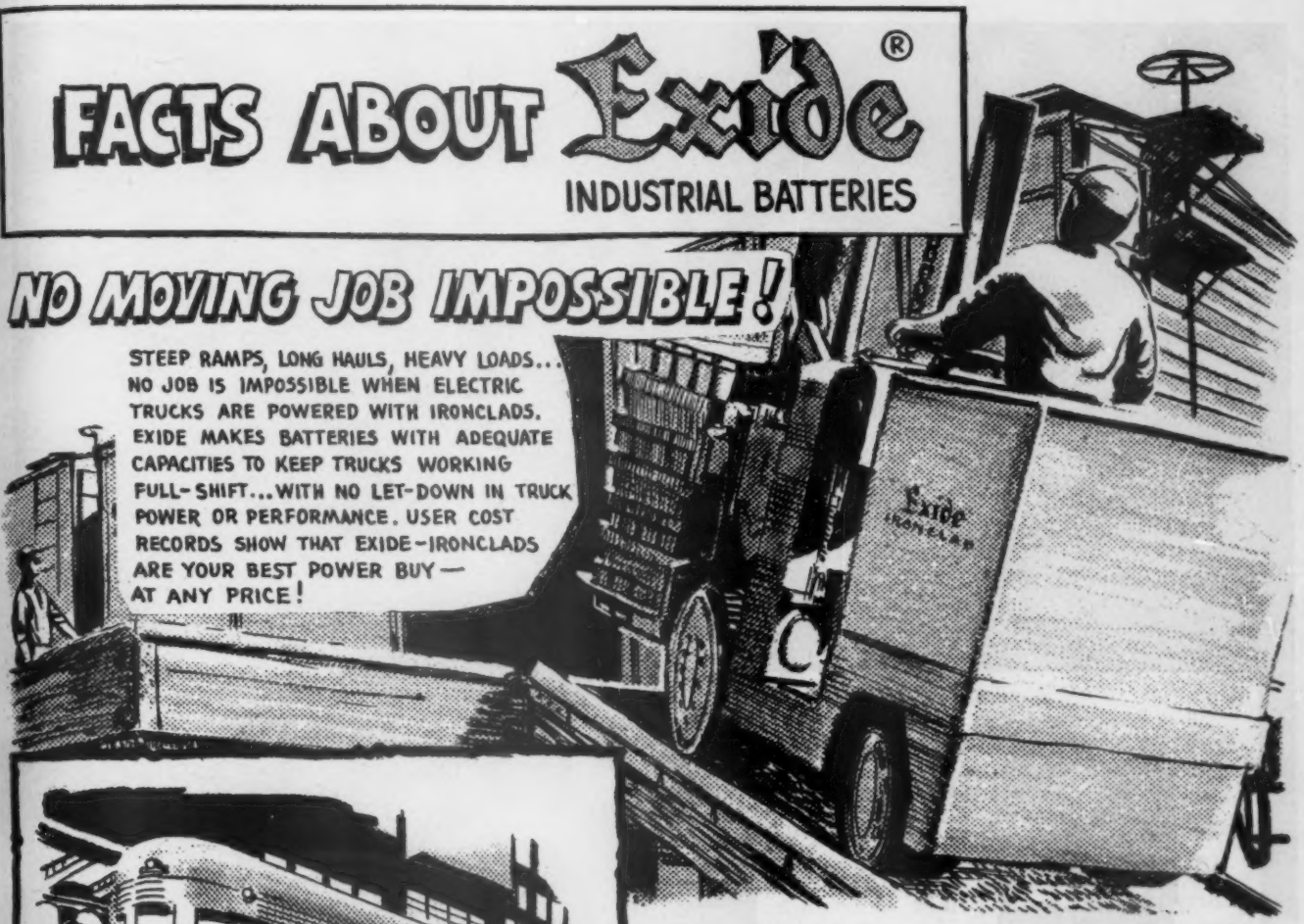
BETHLEHEM STEEL

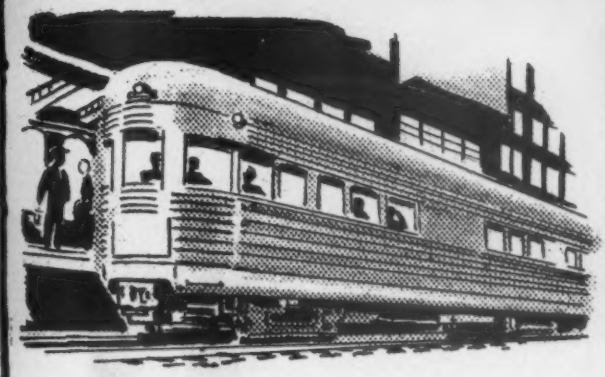
For More Information Circle No. 744 on Inquiry Card—Page 17

FACTS ABOUT Exide®
INDUSTRIAL BATTERIES

NO MOVING JOB IMPOSSIBLE!

STEEP RAMPS, LONG HAULS, HEAVY LOADS... NO JOB IS IMPOSSIBLE WHEN ELECTRIC TRUCKS ARE POWERED WITH IRONCLADS. EXIDE MAKES BATTERIES WITH ADEQUATE CAPACITIES TO KEEP TRUCKS WORKING FULL-SHIFT...WITH NO LET-DOWN IN TRUCK POWER OR PERFORMANCE. USER COST RECORDS SHOW THAT EXIDE-IRONCLADS ARE YOUR BEST POWER BUY— AT ANY PRICE!





BRIGHT LIGHTS
COOL, COMFORTABLE CARS WITH EXIDE

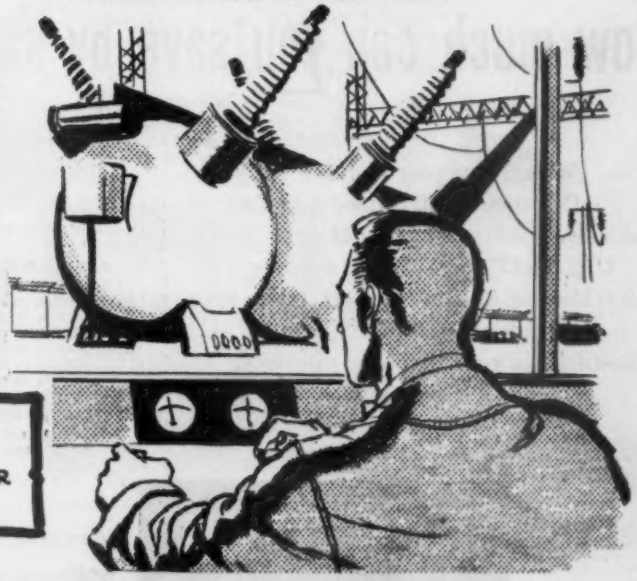
EXIDE-IRONCLAD BATTERIES KEEP PASSENGER CAR LIGHTS BRIGHT AND STEADY...KEEP CARS COMFORTABLY AIR CONDITIONED EVEN DURING LONG STOPS.

FLASH!

EXIDE INTRODUCES THE NEW EH EXIDE-IRONCLAD CAR LIGHTING AND AIR CONDITIONING BATTERY! IT SETS NEW STANDARDS FOR RAILWAY PERFORMANCE-GIVES FULL RATED POWER INITIALLY—FULL RATED POWER FOR A LONGER WORKING LIFE. WRITE FOR SPECIFICATIONS.

TRIPPING GIANTS
WITH EXIDE POWER

THE GIANT-SIZED CIRCUIT BREAKERS REQUIRED TO CONTROL AMERICA'S TREMENDOUS, GROWING UTILITY POWER LOAD ARE BOTH TESTED AND OPERATED WITH DEPENDABLE EXIDE BATTERIES. EXIDE MAKES MANY BATTERIES FOR MANY INDUSTRIES...TO GUARANTEE INSTANT, POSITIVE OPERATION OF VITAL ELECTRICAL EQUIPMENT.



EXIDE INDUSTRIAL BATTERIES ARE BUILT FOR LONGER LIFE AND GREATER POWER. LET AN EXIDE SALES ENGINEER SHOW YOU HOW EXIDES CAN IMPROVE YOUR OPERATIONS, CUT COSTS, PROTECT YOUR BUSINESS.

Exide INDUSTRIAL DIVISION, The Electric Storage Battery Company, Philadelphia 2, Pa.

For More Information Circle No. 746 on Inquiry Card—Page 17



Bostitch T5-8 Tacker with Outward Clinch—It anchors staples inside soft materials entirely from the outside. Staple legs spread to form strong, tight clinch. Ask your Bostitch Economy Man for a demonstration.

STAPLES HOLD BETTER AT ONE-TENTH THE COST! Trans World Airlines overlook no detail in assuring the safe, swift arrival of air freight shipments. Shipping bills fastened to cartons with even the best tape sometimes tore loose in damp climates. And taping cost $14 per thousand bills. A Bostitch Economy Man suggested stapling the bills with a new Bostitch tacker that "spread-eagles" staple legs inside carton walls. TWA tried it, found stapling four times faster and *far superior in holding power.* Cost: $1.40 a thousand. Now all major TWA stations are Bostitch-equipped!

How much can you save by switching to Bostitch stapling?

Your Bostitch Economy Man can tell you. He's one of 350 trained fastening specialists working out of 123 cities in the U. S. and Canada. There are over 800 kinds of Bostitch staplers in his cost-cutting repertoire. Look up "Bostitch" in your telephone directory, or check the coupon at the right.

Fasten it better and faster with

BOSTITCH
STAPLERS AND STAPLES

BOSTITCH, INC., 726 Mechanic St., Westerly, R. I.

I'd like to know exactly how stapling can cut costs in our fastening operations. I'm particularly interested in the following applications (please check):

HI-SPEED PRODUCTION FASTENING
- ☐ stapling vs. riveting
- ☐ stapling vs. spot welding
- ☐ stapling vs. screws or bolts
- ☐ stapling vs. glue or cement
- ☐ stapling vs. tape
- ☐ stapling vs. tacks or nails
- ☐ stapling vs. solder
- ☐ stapling vs. wire or string

PACKAGING AND CARDING
- ☐ sealing bags (cloth, paper or plastic)
- ☐ mounting products on display cards
- ☐ fastening items to individual cards

SHIPPING ROOM ECONOMIES
- ☐ preparing cartons for filling
- ☐ sealing filled cartons
- ☐ lining or padding crates
- ☐ applying shipping bills or tags

BUILDING APPLICATIONS
- ☐ applying asphalt roofing
- ☐ laying underfelt
- ☐ installing ceiling tile
- ☐ applying insulation
- ☐ installing low-voltage wiring
- ☐ applying shake shingle siding

OFFICE EFFICIENCIES
- ☐ filing
- ☐ routing
- ☐ posting
- ☐ binding folders and reports
- ☐ preparing advertising dummies

Name _____ *Position* _____

Company _____

Address _____

City _____ *Zone* _____ *State* _____

For More Information Circle No. 747 on Inquiry Card—Page 17

heavy handling costs less WITH A Whiting Crane!



The overhead crane that saves its user money is one that is *just right* for its specific job. "Too little" crane is as costly as "too much" crane. Whiting —with more than 60 years' experience in crane construction for firms throughout industry— engineers "just enough" crane for *future* as well as *immediate* needs. More efficient crane operation also helps to lower costs. For example, the new Whiting Selectodyne controls assure the fastest, most accurate lifting, moving and spotting. Ingenuity of Whiting Crane design makes possible large savings in maintenance. Better materials are used in Whiting Cranes . . . anti-friction bearings and precision-made gears reduce friction and wear problems . . . securely-fitted shafts and flanged couplings that stay tight provide peak performance. These, and many other outstanding Whiting Crane features mean a longer, trouble-free life that results in low-cost handling! Before you invest in any crane . . . investigate the Whiting Crane!

WHITING CORPORATION

15616 Lathrop Avenue, Harvey, Illinois

Write for the new Whiting Crane Bulletin—Unit 80 . . . gives complete information on the 14 outstanding Whiting Crane features! Send for it today!



Whiting also manufactures...



Hoists

WHITING

ENGINEERED CRANES

Trackmobiles



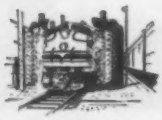
Trambeam Systems



Foundry Equipment



Railroad Equipment



Chemical Equipment



For More Information Circle No. 751 on Inquiry Card—Page 17

A CHALLENGE to YOU...and YOU!

2 PUSH PEDALS FOR SAFETY!

REVOLUTIONARY NEW PRINCIPLES OF DESIGN MAKE THESE PRODUCTS OUTPERFORM ANY OTHERS . . . . . AND CUT YOUR HANDLING COSTS. HERE'S A TEST YOU CAN'T LOSE

TRY



ALL-STEEL

TRUCK LOCK

RIGHT IN YOUR OWN PLANT

If you want to save time, toes and money—here's your chance—with the easiest Truck Lock to operate. You simply step on one pedal to lock—step on the other pedal to release. Each action is positive. No more scuffed shoes from rough cast edges. No more soles torn away from shoe tops. Toe presses down on the Faultless Truck Lock—toe *does not lift*. YOUR HELP WILL PREFER THIS SAFE TRUCK LOCK. SAFETY ENGINEERS DEMAND THEM.

Install Faultless Truck Locks on your equipment, try them for 30 days. If they don't outperform any other similar purpose Locks you've used, the experience with Faultless Locks costs you nothing! Fair enough? Just communicate with our main office.


PRESS DOWN TO LOCK


PRESS DOWN TO RELEASE



SH-300 Swivel Plate Truck Caster shown with Vulcanized Rubber Tread Wheel for loads from 500 to 950 lbs.

SPRING ACTION CASTERS

If you handle ceramics, fragile assemblies, liquids, other heavy materials needing added protection of shock-absorbing Casters—install Faultless Spring Action Casters on your equipment.

This unique caster construction maintains a level load on trucks moving over irregular floors. Wheels contact floor surface at all times—eliminate bounce—don't raise truck when mounting obstacles.

Already time-tested by leading industrial engineers, this Caster is acclaimed for its use of standard, interchangeable wheels . . . absorption of high impact shocks through use of a large, durable spring *under constant compression* . . . spring and draw bar assembly a separate member. Write for catalog data with complete load capacities and specifications.



Note how large, long-lasting spring compensates for floor irregularities, eliminates bounce or shock, protects both load and caster.

FAULTLESS CASTER CORPORATION EVANSVILLE 7, IND., U. S. A.

Branches in Atlanta, Boston, Buffalo, Chicago, Cleveland, Dallas, Detroit, Grand Rapids, High Point, Houston, Indianapolis, Los Angeles, New York, Philadelphia, St. Louis. Canadian Factory: Stratford, Ontario.

For More Information Circle No. 752 on Inquiry Card—Page 17

Baskets Cut Handling And Degreasing Time By 62.7%



Under an old method of handling and degreasing small parts in a midwest manufacturing plant, parts had to be transferred back and forth from drums to tote boxes. Time for handling 50,000 pieces was 19.7 minutes. By using NesTier baskets, which eliminated transfer of parts in and out special containers for degreasing, time for handling was cut to 7.34 minutes. In addition to this 62.7% saving in handling labor, the company achieved other savings at assembly stations because of better layouts and hopper feeds. NesTier units are made by The Chas. Wm. Doepke Mfg. Co., Inc.

Circle No. 280 on Inquiry Card—Page 17

BOWERS

BATTERIES

Always Better

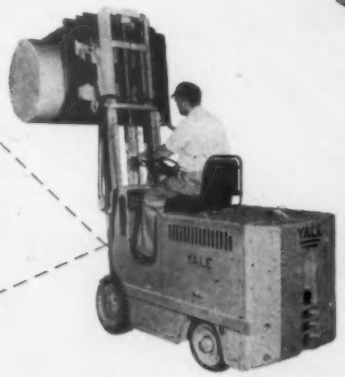
BOWERS BATTERY & SPARK PLUG CO., READING, PA

For More Information Circle No. 753 on Inquiry Card—Page 17

Q. HOW MANY TRUCKS HERE?



YALE Electric Truck with basic forks performs a host of routine handling jobs like this.





Clamping attachment simplifies handling of large, bulky units or fragile containers. There are other YALE attachments for handling any type material.

Revolving attachment on same YALE Electric Truck handles huge paper rolls or drums with ease, stacks them flat or up-ended.

A. ONE! A SINGLE YALE TRUCK DOES THESE 3 JOBS AND MORE

Take a YALE Truck...add interchangeable YALE attachments...and you can handle a variety of lifting, stacking and moving jobs every day! What's more, you'll handle them faster, safer and at less cost. Job-specified YALE attachments—installed in minutes, removed as easily—perform dozens of specialized handling jobs...are designed for use with every Truck in the complete YALE line.

Thus, you may select just the equipment you require for your operations from the world's widest range of Electric Trucks; Gas, Diesel and LP-Gas Trucks and use-extending attachments. For full information about these dependable, economical, longer-lasting industrial tools, send coupon today!

YALE* INDUSTRIAL LIFT TRUCKS AND HOISTS

*REG. U. S. PAT. OFF.

Gas, Electric, Diesel & LP-Gas Industrial Trucks • Worksavers
Warehousers • Hand Trucks • Hand & Electric Hoists

MAIL THIS COUPON TODAY

The YALE & TOWNE Manufacturing Co., Dept. 256
Roosevelt Boulevard, Philadelphia 15, Penna.

☐ Please have your local representative call.
☐ Please send me further information on YALE Trucks and attachments.

Company_____

Name_____ Title_____

Street_____ City_____ State_____

In Canada write: The Yale & Towne Manufacturing Co.
St. Catharines, Ontario, Canada

For More Information Circle No. 754 on Inquiry Card—Page 17



General Traffic Manager Douglas Dawson of Norton Company tells

"How Norton makes the sparks fly!"

"When a plant's grinding operations break down, their production lines may grind to a halt, too. *We* have to make the sparks fly!" says Doug Dawson.

"The abrasive that can meet specifications – and *gets there first* – gets the order.

"We win those races time after time from our one big plant in Worcester, Mass.

"How? With on-the-ball engineering – and Air Express! To us, Air Express is like a full warehouse in every community; we can deliver anywhere in the U.S. in a few hours.

"Yet, we actually save money when we use Air Express instead of other air carriers. A typical 25-lb. shipment from Worcester to Chicago, for example, costs $8.85. That's $3.55 cheaper than any other direct air service!

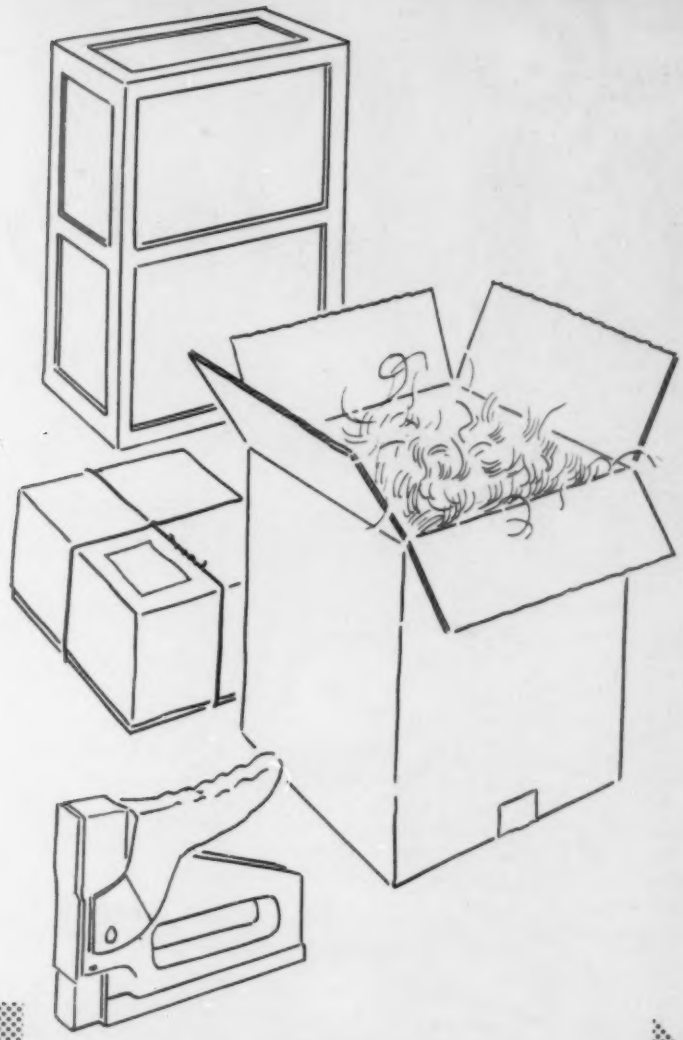
"Those savings add up when you ship as much as 1,000 pounds a day by Air Express, as we do!"

Air Express

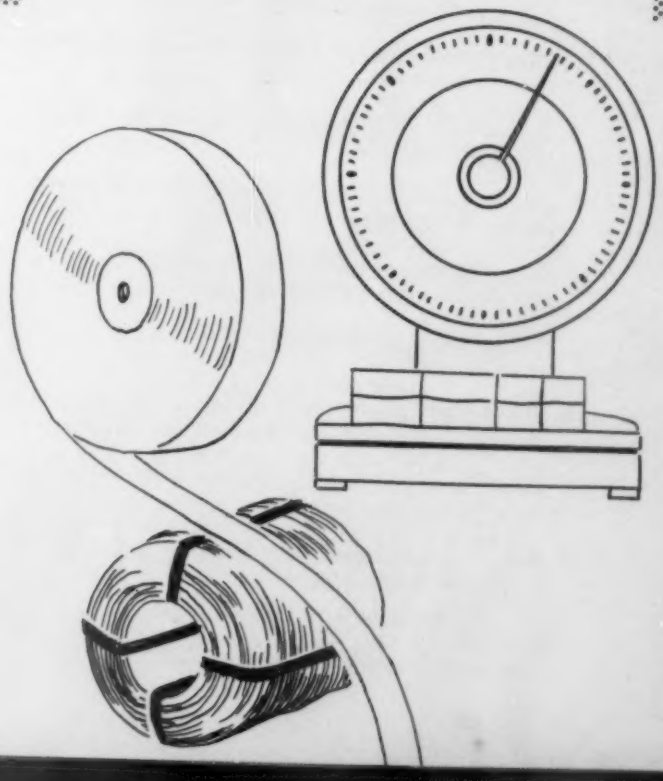
GETS THERE FIRST *via U.S. Scheduled Airlines*

CALL AIR EXPRESS . . . *division of* **RAILWAY EXPRESS AGENCY**

For More Information Circle No. 755 on Inquiry Card—Page 17



PACKAGING & SHIPPING





Check Your
PACKAGING & SHIPPING
VQ*

	YES	NO
1. Do we actively solicit suggestions for lower cost packaging methods from specialists in the field?		
2. Are we working with parts and materials suppliers both to cut packaging costs and prevent damage to shipments resulting from poorly designed containers?		
3. When evaluating the advantages of various types of containers, do we consider the freight cost advantages of the lighter type?		
4. Have we considered combining shipments from a number of suppliers in the same area to get the advantage of car or truckload rates?		
5. Have we fully investigated the relative merits of alternate packaging materials—wood, metal, plastic, corrugated, bags, wire, strapping, etc.?		
6. Are we familiar with the pros and cons of expendable vs. returnable pallets and containers?		
7. Are we using the most efficient methods to bind and close containers for outgoing shipment?		
8. Do we consider freight cost when evaluating bids from various parts and materials suppliers?		
9. Do we consider demurrage charges when scheduling incoming shipments?		
10. Do we know what packaging of purchased items costs us; are we alert to possibilities of doing it cheaper?		
11. Have we considered having purchased items packaged in containers which we can re-use in our own operation?		
12. Are we constantly fighting to hold costly emergency shipments to a minimum?		
13. Are we familiar with the freight rate advantages occasionally obtained by special classifications, mixed shipments, etc.?		
14. Do we find out the cheapest method of shipment and specify it on our purchase order?		
15. Have we considered using space on packaging on outgoing shipments for advertising?		

*Value Quotient



What to look for when you buy Shipping Containers



SAVE THIS CHECKLIST
Use it to get the facts on the shipping containers you consider. And make sure to include a Gair container among them.

RATE YOUR CONTAINER ON:

PACKING AND SHIPPING COSTS

(See one case of Gair savings, second page over.)

Cost of each container $_____

Cost of additional packing materials $_____

Cost of packing labor $_____

Miscellaneous packing costs $_____

Add to find total packing costs $_____

Weight of container itself _____

Multiply by average freight rate $_____

Amount your container adds to shipping costs $_____

PROTECTING THE PRODUCT

(See what a Gair container did for Colton Chemical Co., next page.)

	YES	NO
Average breakage for your field?		%
Actual breakage you've encountered?		%
Is your container performance under the average?		
Are you using the most efficient inner packing?		
Does your container need special properties such as weatherproofness or grease resistance?		

BUILDING SALES

(See the Samson Cordage story, back page of this insert.)

	YES	NO
Is it printed for identification?		
Is it multi-color printed for visual impact?		
Should you consider a shipper display or display stand?		

On the following pages you'll see a few examples of the savings Gair containers have put in the pockets of companies like yours. You'll see how Gair containers have brought breakage in transit to a new low. You'll also see how a Gair display container moved one product from store basements to counter tops — where sales get started.

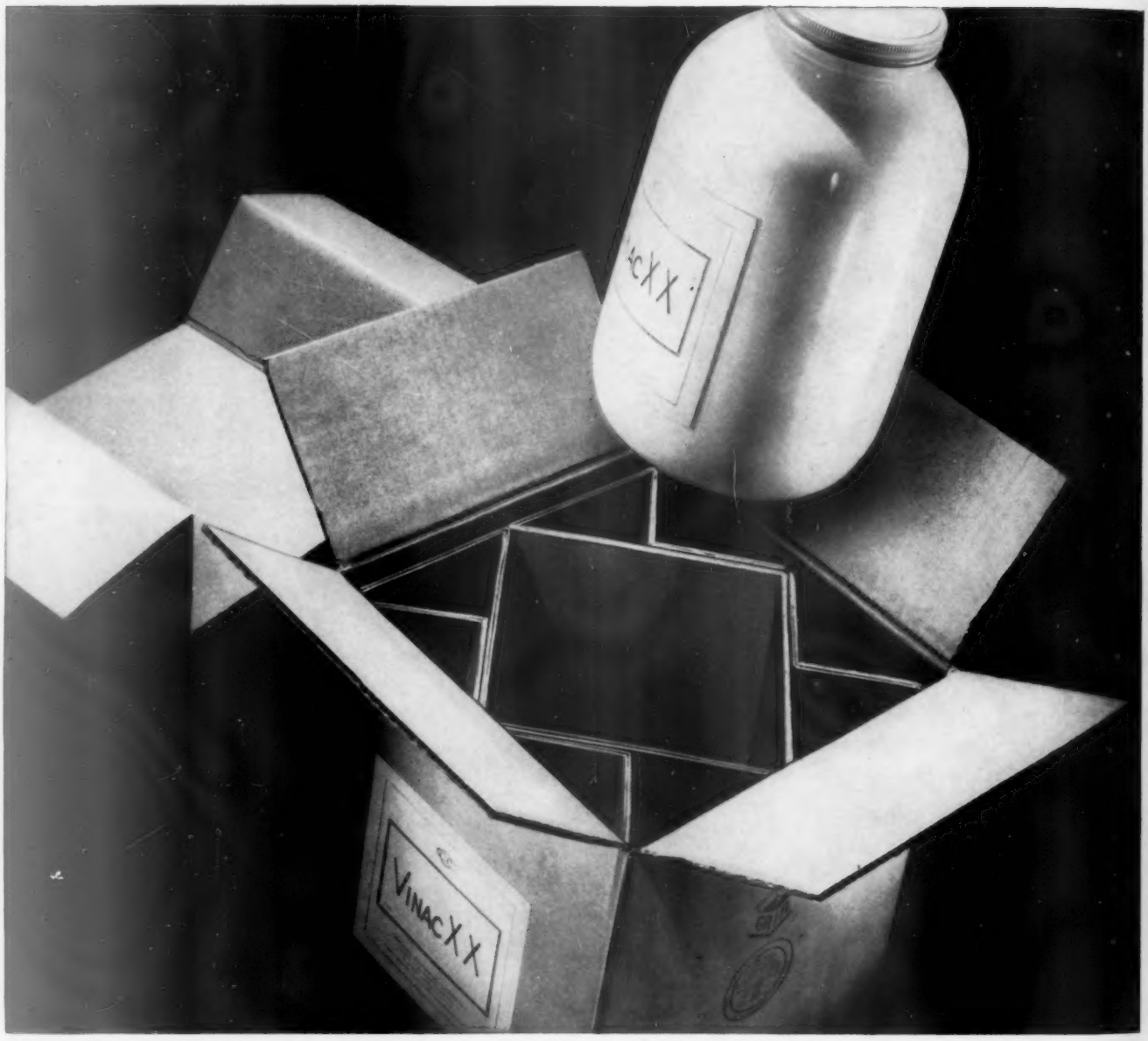


GAIR

SHIPPING CONTAINERS

FOLDING CARTONS • PAPERBOARD





New way to mail a glass bottle

The old way — the one Gair and the Colton Chemical Company of Cleveland (a division of Air Reduction Co., Inc.) have now streamlined — was messy and costly.

It involved an oversized shipping container, with hard-to-handle sawdust taking up the excess space. Finally tired of scattering profits along the sawdust trail, Colton took time to listen to the man from Gair. Now they're glad.

Their new Gair corrugated container eliminates the sawdust completely, along with the expense of buying, storing, moving, and cleaning it up. Packaging costs are down to a minimum and breakage (low before) has disappeared.

The trick, of course, is Gair's structural design of the container — using two creased corrugated sheets to handle *all* shocks. The trick in getting more protection for your product? To get the answer, call *your* nearest Gair container plant. One of our men will be glad to talk to your shipping people.

YOU'RE LIVING NEXT DOOR TO THE EXPERT

GAIR CONTAINER PLANTS: Atlanta, Ga. • Cambridge, Mass. • Cleveland, Ohio • Holyoke, Mass. • Los Angeles, Cal. • Martinsville, Va. • No. Tonawanda, N.Y. • Philadelphia, Pa. • Plymouth, Mich. • Portland, Conn. • Richmond, Va. • Syracuse, N.Y. • Teterboro, N.J.

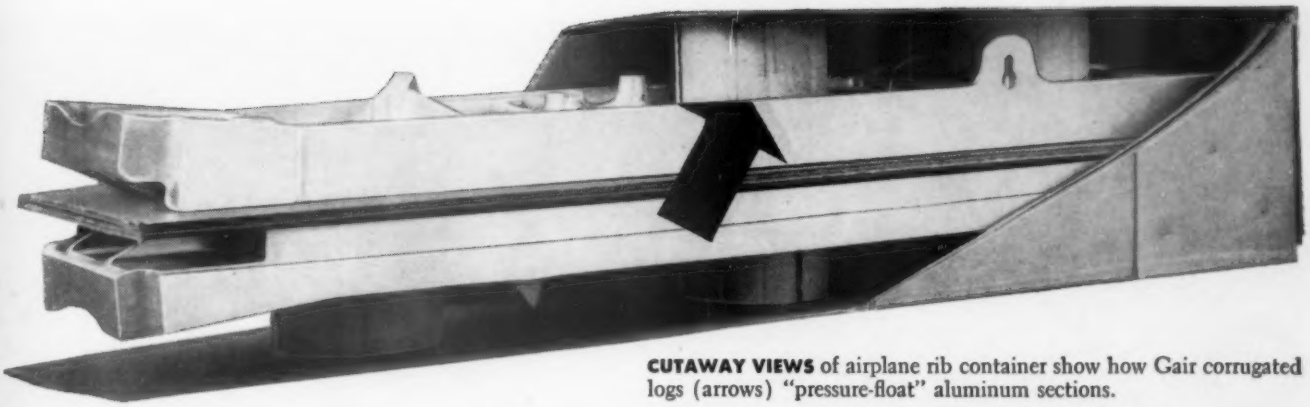
SINCE 1864

GAIR

SHIPPING CONTAINERS

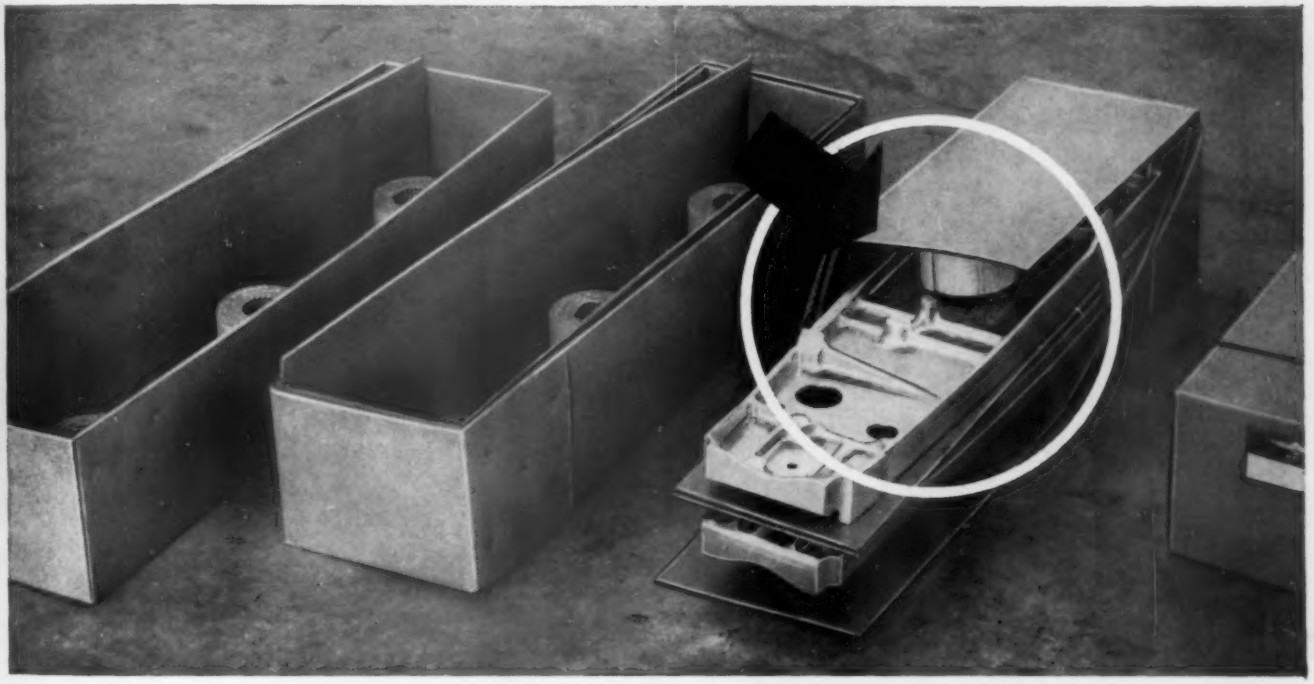
FOLDING CARTONS • PAPERBOARD

ROBERT GAIR COMPANY, INC. • 155 EAST 44TH STREET • NEW YORK 17, N.Y.



CUTAWAY VIEWS of airplane rib container show how Gair corrugated logs (arrows) "pressure-float" aluminum sections.

Gair corrugated logs provide safe ride for contoured aircraft ribs



Thirty-five pounds of odd-shaped aluminum airplane rib posed quite a packaging problem for MPM, Inc., Cleveland specialists in Kellering and contouring aircraft parts.

Chief difficulty facing the Gair Container experts called in by MPM was securing the long, contoured aluminum sections inside the container to prevent damage in transit. Gair's imaginative and cost-cutting solution featured one of the industry's first uses of corrugated logs instead of intricately cut and creased packing sheets.

Six corrugated logs "pressure-float" the parts so effectively that no damage has occurred in the 1500 shipments completed to date.

Good example, we feel, of Gair's ability to come up with an out-of-the-ordinary container to solve a tough shipping problem. If you've got one that seems to defy solution, put Gair to work on it.

YOU'RE LIVING NEXT DOOR TO THE EXPERT

GAIR CONTAINER PLANTS: Atlanta, Ga. • Cambridge, Mass. • Cleveland, Ohio • Holyoke, Mass. • Los Angeles, Cal. • Martinsville, Va. • No. Tonawanda, N. Y. • Philadelphia, Pa. • Plymouth, Mich. • Portland, Conn. • Richmond, Va. • Syracuse, N. Y. • Teterboro, N. J.

SINCE 1864

GAIR

SHIPPING CONTAINERS

FOLDING CARTONS • PAPERBOARD

ROBERT GAIR COMPANY, INC. • 155 EAST 44TH STREET • NEW YORK 17, N.Y.

SC.5.6



New rope trick sends sales soaring

Gair's hexagon cord dispenser works sales magic for Samson Cordage Works. Here's how one Boston cord manufacturer really helped sales — and profits — with a new Gair display package.

When a customer asks for a special length of cord, the salesman simply supplies it from the attractive, functional Gair container.

Thanks to the new dispenser which Samson uses for 4 products, their products have moved up to the first row on many retailers' shelves. Customers are stimulated into a buying mood when they see the hex-shaped blue and red box with its twelve suggested uses for rope. And they're buying *more* cord.

The hexagon construction, incidentally, makes initial setup, packing, and closure a lot easier for Samson's shipping people.

Your display packaging problems may (or may not) be similar — but Gair can help your product put its best foot forward. Write your nearest Gair shipping container plant. SC.5.3

YOU'RE LIVING NEXT DOOR TO THE EXPERTS

GAIR CONTAINER PLANTS: Atlanta, Ga. • Cambridge, Mass. • Cleveland, Ohio • Holyoke, Mass. • Los Angeles, Cal. • Martinsville, Va. • No. Tonawanda, N. Y. • Philadelphia, Pa. • Plymouth, Mich. • Portland, Conn. • Richmond, Va. • Syracuse, N. Y. • Teterboro, N. J.

SINCE 1864

GAIR

SHIPPING CONTAINERS

FOLDING CARTONS • PAPERBOARD

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Custom Designed

for the lowest out-the-door cost



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INLAND CONTAINER CORPORATION'S leadership in the industry is a result of pioneering developments that have reduced customer costs in packaging, handling, storing, and shipping their products.

To meet the hazards of modern distribution, your product must be packaged with balanced protection. Inland offers you custom designed containers to assure safe delivery of your products at the lowest "out-the-door" cost.

This new corrugated shipping container for a window air conditioner is an example of what Inland custom designing can do. It is light weight, yet so strong that it can support stacks of eight to ten average units custom designed for safe, clean delivery of each unit.

If your nearby Inland Package Engineer has not worked with *your* product recently, it will be worth your while to give him a call

INLAND BOXES

INLAND BOXES BUILD GOOD WILL

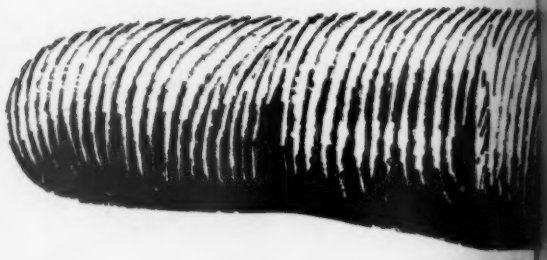
INLAND CONTAINER CORPORATION

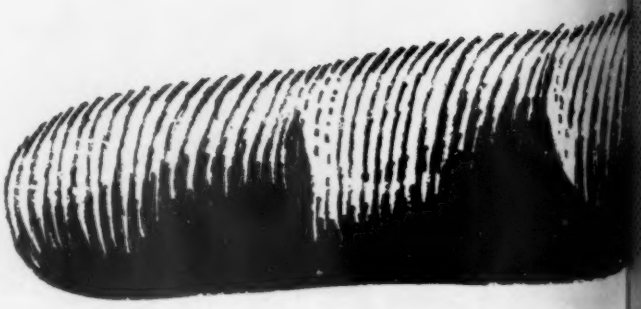
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Put your shipment

America's most experienced airfreight service assures you of expert handling, prompt forwarding and dependable on-time deliveries





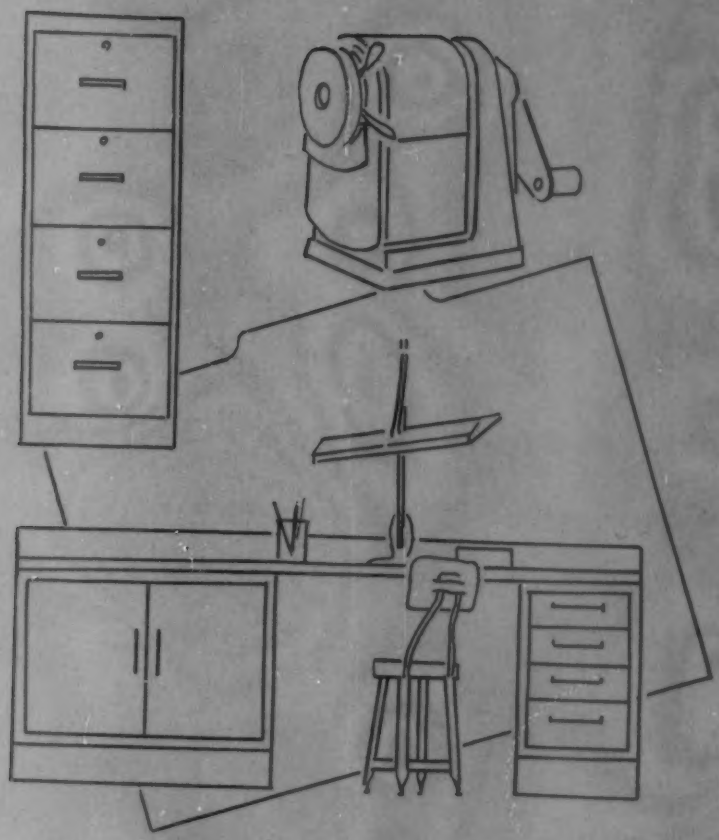




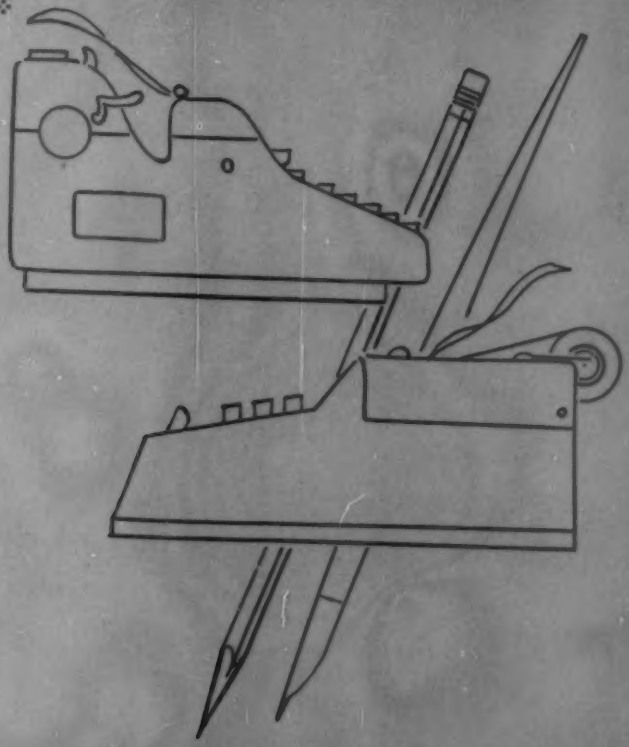
First with scheduled airfreight, American Airlines today has the largest personnel force, the most modern handling equipment. Add this edge in experience and facilities to American's superiority in coverage and capacity and you'll readily see why American Airlines is better qualified *than any other carrier* when it comes to solving shipping problems and cutting distribution costs. American Airlines, Inc., Cargo Sales Division, 100 Park Avenue, New York 17, New York.

AMERICAN AIRLINES INC.

America's Leading Airline



OFFICE EQUIPMENT & SUPPLIES





Check Your OFFICE EQUIPMENT VQ*

	YES	NO
1. Do we keep a record of the different kinds and makes of office machines in use throughout the company?		
2. Have we investigated the possibility of leasing or renting equipment, particularly high speed accounting machines?		
3. What attempts have we made to solve the problem of frequent ordering of small stationery items?		
4. Have we compared the advantages of testing supply items with the advantages of buying such items purely by brand name?		
5. Have we weighed the possibility of standardizing on furniture items?		
6. Have we made a serious attempt to analyze office problems so that the correct machine or application can be used?		
7. Do we use the office equipment salesman as a means of keeping up with the latest developments in machines and methods?		
8. What are we doing toward the replacement of all aging office machines so as to maintain the office at peak efficiency?		
9. Have we made any concrete efforts to see how new machines fit into our office work-flow, or how the machines' potentials can be fully realized?		
10. Is the equipment in use in various departments adequate for the existing work load?		
11. Conversely, is high cost equipment doing low cost work?		
12. Have we compared the cost of service contracts with outside organizations against those of internal machine servicing?		
13. Do we use the service offered by many companies by calling in sales representatives to help in the solution of involved records problems?		
14. Have we made an attempt to standardize on our forms so as to make it more economical to buy standard folders and binders to house them?		
15. Have we carefully studied the work-flow of the office so that we can more readily understand the procedure pattern, potential bottlenecks, and equipment usage routine?		

*Value Quotient

A BRAND NEW LINE!

TEXCEL TAPE DISPENSERS IN COLOR



MAHOGANY



SEA SPRAY



BLUE SPRUCE



FRENCH GREY



GUNMETAL



BLACK



MAHOGANY



SATINWOOD

INDUSTRIAL **DESK** **COUNTER**

TEXCEL®

DISPENSERS

PERMACEL TAPE CORPORATION, NEW BRUNSWICK, NEW JERSEY, a Johnson & Johnson company



Dual Feed Device Simplifies Paperwork; Speeds Order Handling

Handling customers' orders formerly meant typing an 8-part order-invoice and then one or more labels, for a Milwaukee manufacturer. In addition, a parts tag and an inventory tag were handwritten. Now all are combined in a single typing operation, using an electric machine equipped with the Dual Feed device of Standard Register Co., Dayton. This makes it possible to type two different, multiple-part Kant-Slip forms as one. The simplification of paperwork speeds order handling and reduces errors by eliminating the typing of repetitive data.

CIRCLE NO. 330 ON INQUIRY CARD—PAGE 17



Production Control System Avoids Bottlenecks

Because of the need to control production and process inventory of hundreds of types and sizes of steel balls, Strom Steel Ball Co., Chicago, searched for a complete work-in-process control system. The installation of McCaskey Production Control of Victor Adding Machine Co. fit the bill. Records of every job in process are made available simply by filing copies of forms that had to be produced for other purposes. It has eliminated bottlenecks, showed ball sizes or departments behind schedule, and generally provides dependable and accurate controls.

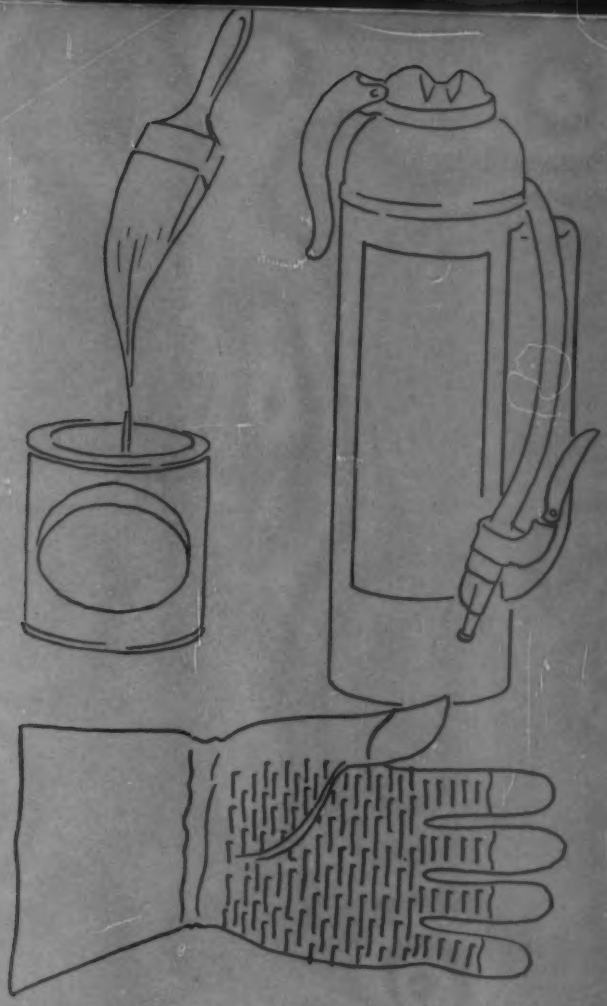
CIRCLE NO. 331 ON INQUIRY CARD—PAGE 17



Mechanized System Saves $5600 A Year Without Adding Help

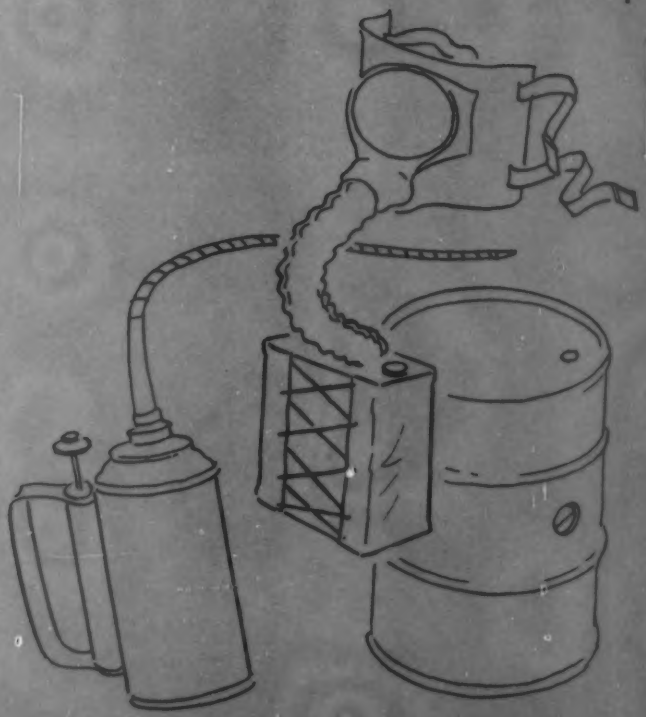
By mechanizing its office system with an accounting machine made by National Cash Register Company, the Columbia Studio Employees' Federal Credit Union saves $5600 a year over the old-fashioned manual method. In addition, the Hollywood organization found that two oral practice sessions and a written set of instructions was all that was necessary to train its operators. The result is that there is a saving of 60 work-hours a month, without adding additional office personnel.

CIRCLE NO. 332 ON INQUIRY CARD—PAGE 17



MAINTENANCE REPAIR AND OPERATING

SAFETY SUPPLIES





Check Your MAINTENANCE VQ*

	YES	NO
1. Do we conscientiously investigate new products that show promise of profitable application to our operations?		
2. If a salesman wants us to try a brand that costs less than the one we are now using, do we make certain it gets a fair and impartial test?		
3. Are we constantly fighting unwarranted brand prejudices that requisitioners acquire and which may prevent free play of competition?		
4. Do we screen requisitions to make certain we are not buying a given item too frequently and not getting the most favorable quantity discount?		
5. Do we use blanket orders for M.R.O. items when our requirements are both relatively large and frequent?		
6. Do we weigh the costs of carrying inventory and potential obsolescence against the advantages of having certain items on hand when needed?		
7. Do we standardize our M.R.O. purchases as much as possible?		
8. Are we continually educating requisitioners on the high cost of emergency orders?		
9. If our financial condition permits and we have the storage facilities, do we buy fuel for our boilers out-of-season to get the best price?		
10. Do we analyze requisitions in terms of value; will a cheaper product do the same job?		
11. Do we periodically get competitive bids to make certain our prices are in line with the market?		
12. Have we considered making purchases of inexpensive items from petty cash rather than going to the expense of issuing an order?		
13. Do we keep records of our M.R.O. purchases so that we may catch price changes as they occur and have a record of alternate sources?		
14. Does our stock control system discourage pilfering and efficiently indicate when reorder is necessary?		
15. Are we aware of the effect the proper coolant can have on lengthening tool life?		

*Value Quotient



EXTRA VALUE..FROM GASOLINE TO SUN'S METALWORKING OILS

Sun Oil Company makes over 400 petroleum products· ...refines better value into every one of them

Sun puts the same extra value into its metalworking oils that it puts into famous Blue Sunoco—Premium Performance at Regular Price.

EXAMPLE: About ten years ago Sun became aware of a hidden source of trouble in metalworking... inadequate lubrication of the ways which support the tables or carriages during a machining operation. The costly result of this inadequate lubrication is called "stick-slip" or jumpy table. This stick... slip...stick (or jump) is often less than a thousandth of an inch...hard to detect and yet enough to cause poor finish, rejects, reduced tool life and a fall-off in production.

SOLUTION: Sun developed its now famous Sunoco Way Lubricant—a product so outstanding in its ability to overcome "stick-slip" that today, more than ten years later, it still is the standard of the metalworking industry.

RESULT: The extra value of Sunoco Way Lubricant has been proved so conclusively that it is approved by more than 55 of the country's leading machine tool manufacturers.

For EXTRA VALUE in petroleum products... buy Sun!

Please turn to the next page

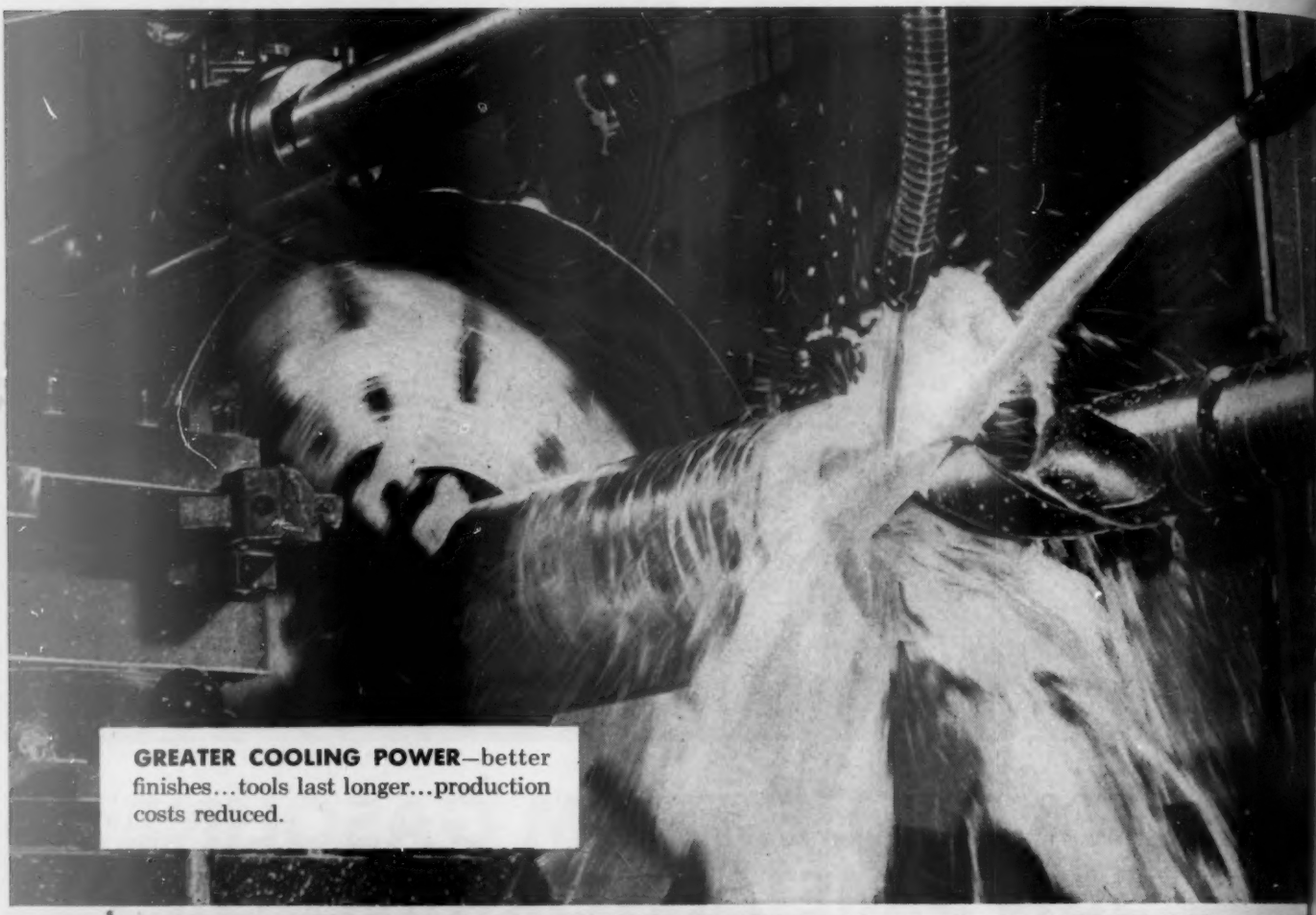
SUNOCO

INDUSTRIAL PRODUCTS DEPARTMENT

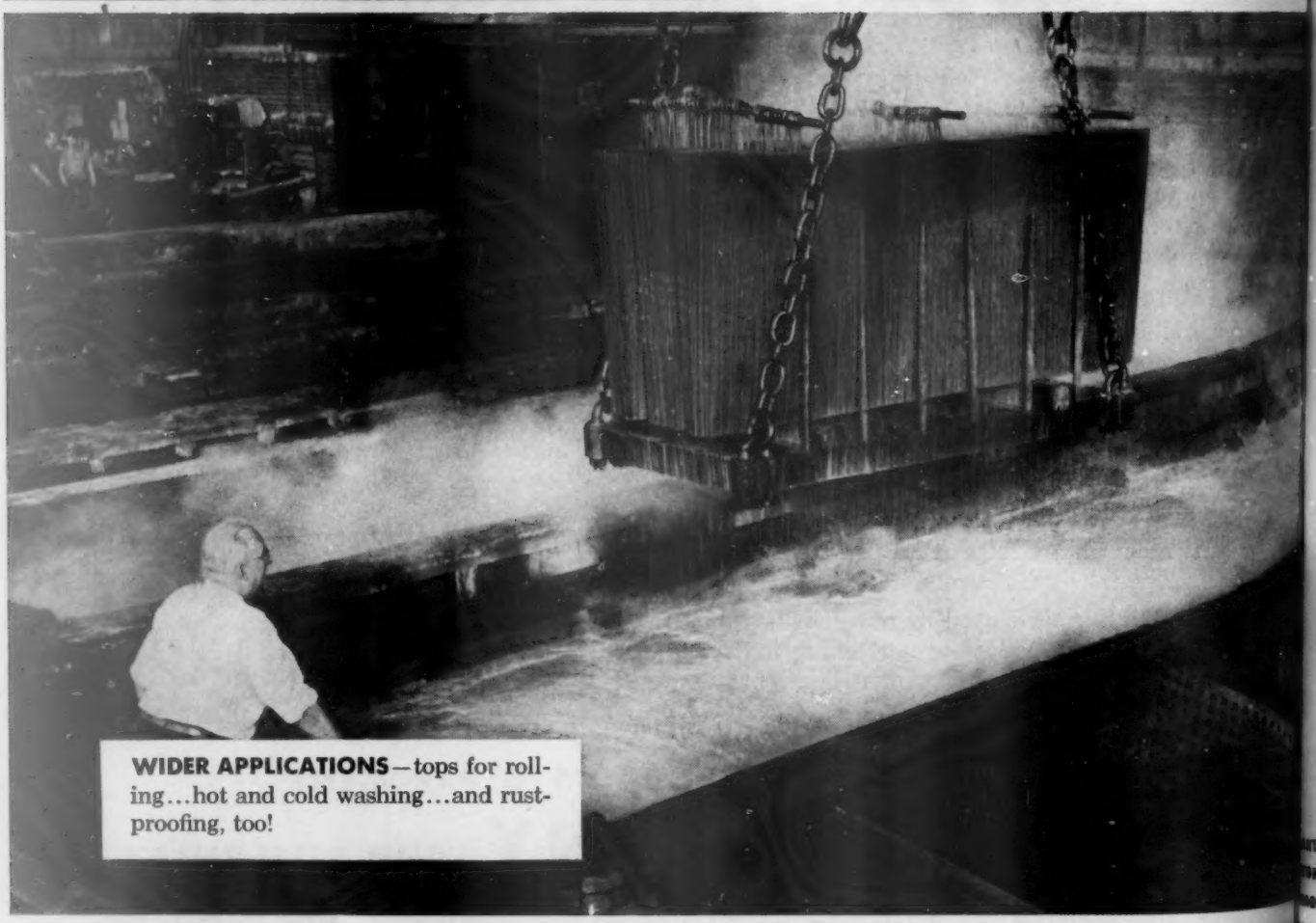
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IN CANADA: SUN OIL COMPANY LTD., TORONTO AND MONTREAL

For More Information Circle No. 816 on Inquiry Card—Page 17



GREATER COOLING POWER—better finishes...tools last longer...production costs reduced.



WIDER APPLICATIONS—tops for rolling...hot and cold washing...and rust-proofing, too!



asbestos

Asbestos-Cement Boards—Corrugated and Flat—Careystone Corrugated for roofing and siding. Furnished in 3/8" thickness, 42" wide and in lengths as required up to and including 12.0'. Easy to saw and erect. Flat Careystone sheets in 5/16", 1/4", 3/8" and 1/2" thicknesses. Standard sheet size 4.0' x 8.0'. Color: Gray.

Asbestos Gasket Stock—For making gaskets, filters and discs.

Asbestos Fiber and Specialties

Asbestos Paper—For all types of wrapping; covering hot air furnace pipes.

Asbestos Millboard—For fire screens, partitions, range lining, radiator recesses—wherever heat-resistant, fire-resistant material is required.

Asbestos Ducts—Careyduct all-asbestos air ducts for air-conditioning and warm air heating systems. Goes up easily and fast. Rectangular and round sections with slip-joint assembly. All types of fittings can be fabricated from these 3.0' sections.

asphalt

Asphalt Emulsions—For roofing, waterproofing, sound deadening, tile adhesive.

Asphalt Plank and Tile—For long life and low maintenance under heavy foot and wheel traffic.

Asphalt Paints, Coatings and Cements—Protective coatings for roofs, exposed surfaces, structural steel.

Asphalt Plyboards—For interior and exterior partitions, walls of all types, easily die-cut.

magnesia

Magnesia Compounds—Light Oxides and Carbonates, "Technical" and "U.S.P." grades. Heavy Oxides, "Technical" and "U.S.P." grades. Heavy Carbonates, "U.S.P." grade.

Magnesia Industrial Insulations—Super-Light 85% Magnesia precision molded blocks and covering—Alltemp Pipe Covering—Tempchek blocks and Hi-Temp No. 19 blocks. For temperatures to 1900° F.

Many other Carey products for industry are available to you. Call your nearest Carey office or representative for prompt service.

Carey

QUALITY PRODUCTS FOR INDUSTRY, FARM AND HOME SINCE 1873

FREE! Latest Carey reference list for asphalt, asbestos and magnesia products and specifications, including Army, Navy, MIL, Federal, ASTM. Clip and mail coupon for your valuable FREE copy today.



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TRinity 5-4680	**NEW YORK** VAnderbilt 6-1530	**WASHINGTON, D. C.** OVerlook 3-2300

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Gentlemen: Please rush my free copy of the Carey Reference Manual for Asphalt, Asbestos and Magnesia Products.

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COMPANY.....

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MEMO TO:
Purchasing Agents

FOR YOUR PIPE AND

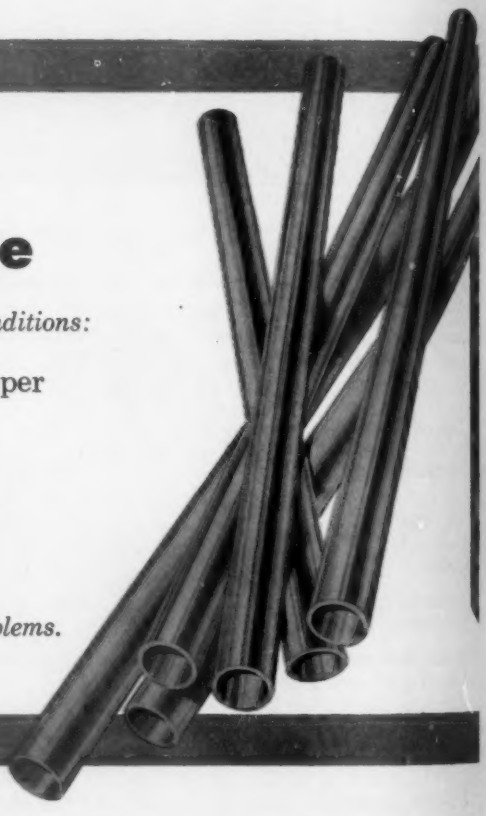
Specify Phelps Dodge for

Condenser and Heat Exchanger Tube

Complete line of copper alloys to meet varying service conditions:

- Admiralty
- Aluminum Brass
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- Superloy
- Aluminum Bronze
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- Muntz Metal

Complete engineering service for solving corrosion problems.



✓ First-Hand Source of Highest Grade Copper—from Phelps Dodge's own open-pit mines.

✓ Finest Tube Properties—including precise uniformity of wall thicknesses—due to Phelps Dodge Hot-Forged, Extrusion Process.

First for Lasting Quality—from Mine to Market!

HOW TO BUY A FAN

THAT WILL JUSTIFY YOUR DECISION

"Buffalo" FANS

- A right fan for every job—easy to select!
- Certified noise data and accurate performance data readily available.
- Easy to install, maintain and operate!
- Moderate first cost — negligible operating cost, year after year!

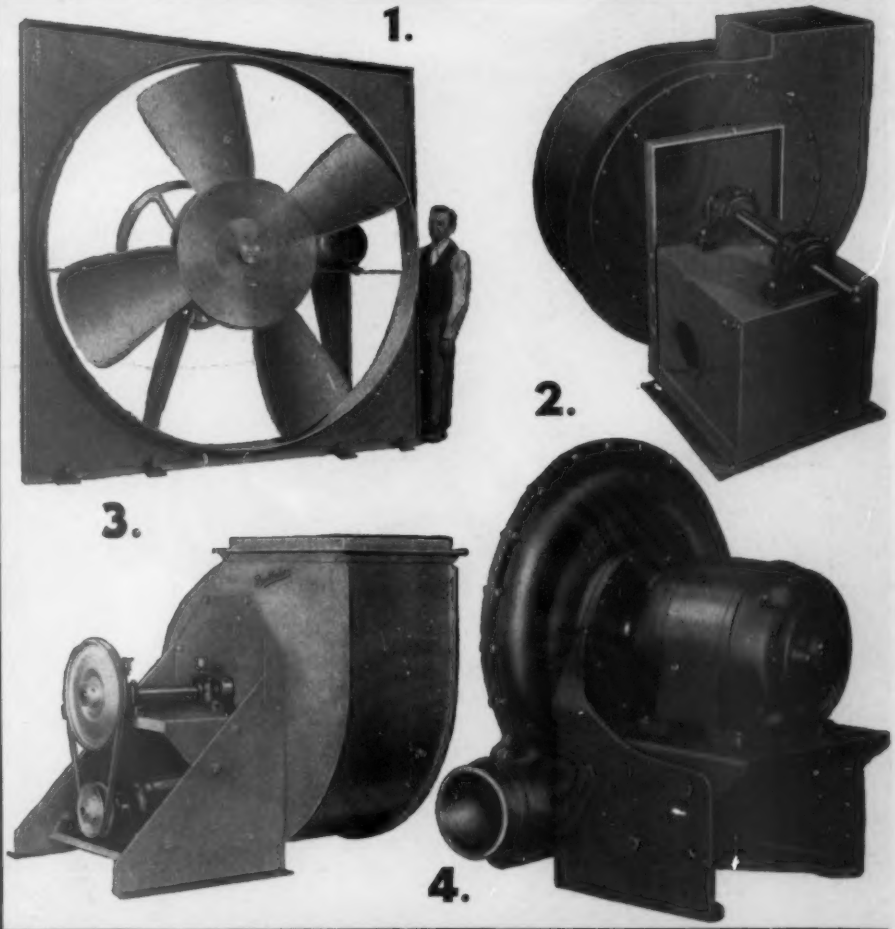
When you're faced with the problem of buying a fan, one of the main considerations is satisfaction. Will it deliver as specified *in operation?* Will it run quietly? Is the size selection wide enough so that you don't need to buy "too much fan"? Will it be trouble-free, or constantly under repairs? In the "Buffalo" line, you have complete selection of sizes and types of fans. You have fans with a 78-year reputation for performing quietly, reliably and efficiently. In short, you have fans with the " Buffalo" "Q" Factor—the built-in quality which provides trouble-free satisfaction and long life. And that's always the best buy.

1. "BUFFALO" PACKAGE PROPELLER FANS are ready to mount in windows or wall openings and start ventilating! Low in first cost, installation cost and trouble-free on the job. Huge size range (500 to 250,000 cubic feet per minute) for ventilating one room or a whole plant. Write for Bulletins FM-1234, FM-115, FM-216 and FM-315.

2. "BUFFALO" INDUSTRIAL EXHAUSTERS are all-welded steel plate to handle your toughest air or materials handling jobs dependably and efficiently. Write for Bulletin FMB-435.

3. "BUFFALO" BELTED VENT SETS are widely used where extra quiet duct-connected ventilation is desired. Light, compact packages delivered ready-to-run. 20,000 cfm capacity. Write for Bulletin 3720.

4. "BUFFALO" "E" BLOWERS-EXHAUSTERS have long been popular for furnace and forge blowing, cupola work, gas boosting, cleaning, other medium pressure jobs. Write for Bulletins 3014-C and FM-900.



BUFFALO FORGE COMPANY

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PUBLISHERS OF "FAN ENGINEERING" HANDBOOK

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

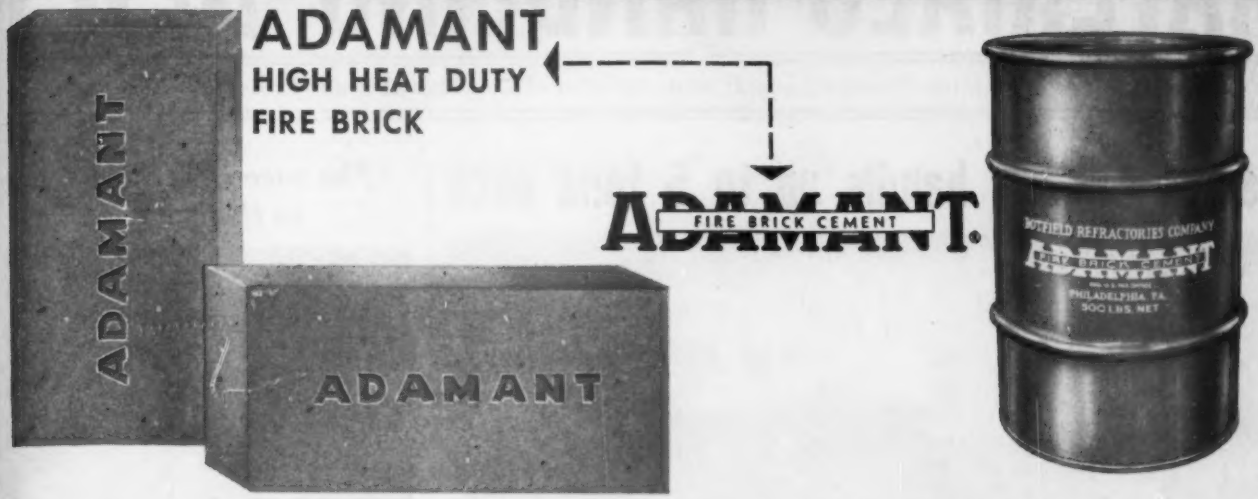
Sales Representatives in all Principal Cities

INDUSTRIAL EXHAUSTERS BELTED VENT SETS PROPELLER FANS "E" BLOWERS-EXHAUSTERS

For More Information Circle No. 855 on Inquiry Card—Page 17


Chips lodged
in wiping materials
injure hands...damage parts...

THIS COMBINATION MEANS LONGER FURNACE LIFE



ADAMANT High Duty Brick—exceptional quality, manufactured under exacting control methods . . . Dry Pressed for density and Tunnel Kiln burned for uniformity of shape and hardness. Meets the A.S.T.M. specification for High Duty Brick.

ADAMANT Cement—unusually high bonding strength at room temperature, which increases as temperature rises . . . this greater bonding strength protects the structure at the joints, where failure usually begins . . . therefore, linings last longer; production is maintained; repair costs and production materials are saved; and, there is less "outage." (100, 250 and 500 lb. air-tight drums).

SUPER ADAPATCH

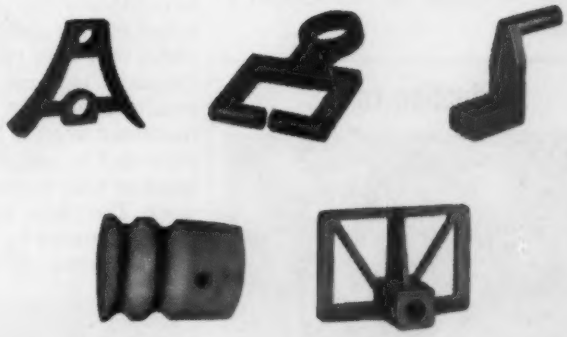
. . . a plastic refractory material highly suitable for constructing monolithic forge furnace linings, boiler furnace walls, pit furnaces, etc. SUPER ADAPATCH meets the demand for an easily handled, economical material.

ADACAST



. . . as shown above, ADACAST enables you to form your own flat, suspended rear arch in H.R.T. boilers . . . with the aid of the newly designed, BOTFIELD Multi-purpose Anchors (described at right).

new design BOTFIELD MULTI-PURPOSE HANGERS



With the above, illustrated anchors all that may be required is lengths of 1½" O.D. pipe for hanging the roof tile . . . or as spacers behind the wall clip for 13½" and 18" walls.

BOTFIELD

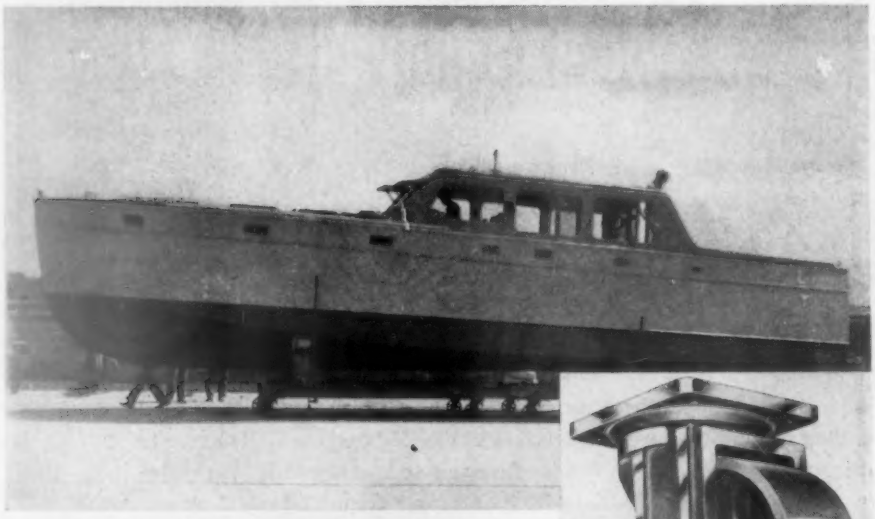
Write for literature . . . and the name and address of your nearest BOTFIELD Industrial Distributor.

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MATERIALS-HANDLING NEWS

★ Panel Discussions by Bassick, World's Largest Manufacturer of Casters and Floor Protection Equipment ★

Bassick casters handle up to 5 tons each





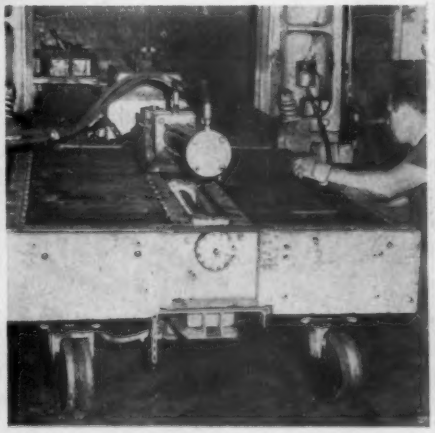
Designed for super heavy-duty

The strongest casters yet built, these big Bassicks are used in moving the heavy loads with safety—anything from boats to bombers—any load up to 10,000 pounds per caster.

Standing up under these enormous loads is only part of the job for these Bassick big boys. With the finest heavy-duty precision bearings, they move and swivel under their five-ton burdens easily, take shocks without a whimper.

Machine tools of motion

That's what you'll call these Bassick Super Heavy-Duty Casters when you get a look at their construction features. Top plates and king pins are one-piece steel forgings. Horns and wheels are high-tensile malleable castings accurately machined to close limits. They're available with 8 in. and 10 in. wheels, standard tread or with V-grooves for use on angle track. The photo below shows hydraulic die wagon used by Fairchild Aircraft to handle overweight press dies.



Production rolls



Engine stands on casters

Easy-rolling double wheel Bassick Casters on these roll-over engine build-up stands speed production in the final assembly area at this Stratford, Connecticut plant of the Lycoming Division of AVCO Manufacturing Corporation.

The race isn't always to the swift



The casters on this injured turtle put us in mind of Aesop's old fable about the tortoise and the hare — and modern materials-handling.

The race *isn't* always to the swift. It's reliability that paid off for the tortoise against the hare — and it's reliability that makes Bassicks pay off against lesser casters.

Bassick casters, remember, have earned their keep in thousands of plants . . . on the toughest jobs. They'll help you save space, reduce costs, eliminate heavy physical labor, and increase your plant's capacity.

How your Bassick distributor can help

Make your industrial distributor a part of your materials-handling team. Two jobs he can do for you:

He'll keep the products you need flowing—from his stockroom—swiftly and economically into your plant.

He'll also show you new ways Bassick casters can help solve materials-handling problems. He's up on the latest improvements in equipment design, handling methods, new production concepts.



THE BASSICK COMPANY
Bridgeport 2, Conn.
In Canada:
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Bassick A DIVISION OF STEWART SW WARNER

MAKING MORE KINDS OF CASTERS... MAKING CASTERS DO MORE

For More Information Circle No. 875 on Inquiry Card—Page 17

You'll
dry better **with**
FORT HOWARD
PAPER TOWELS!



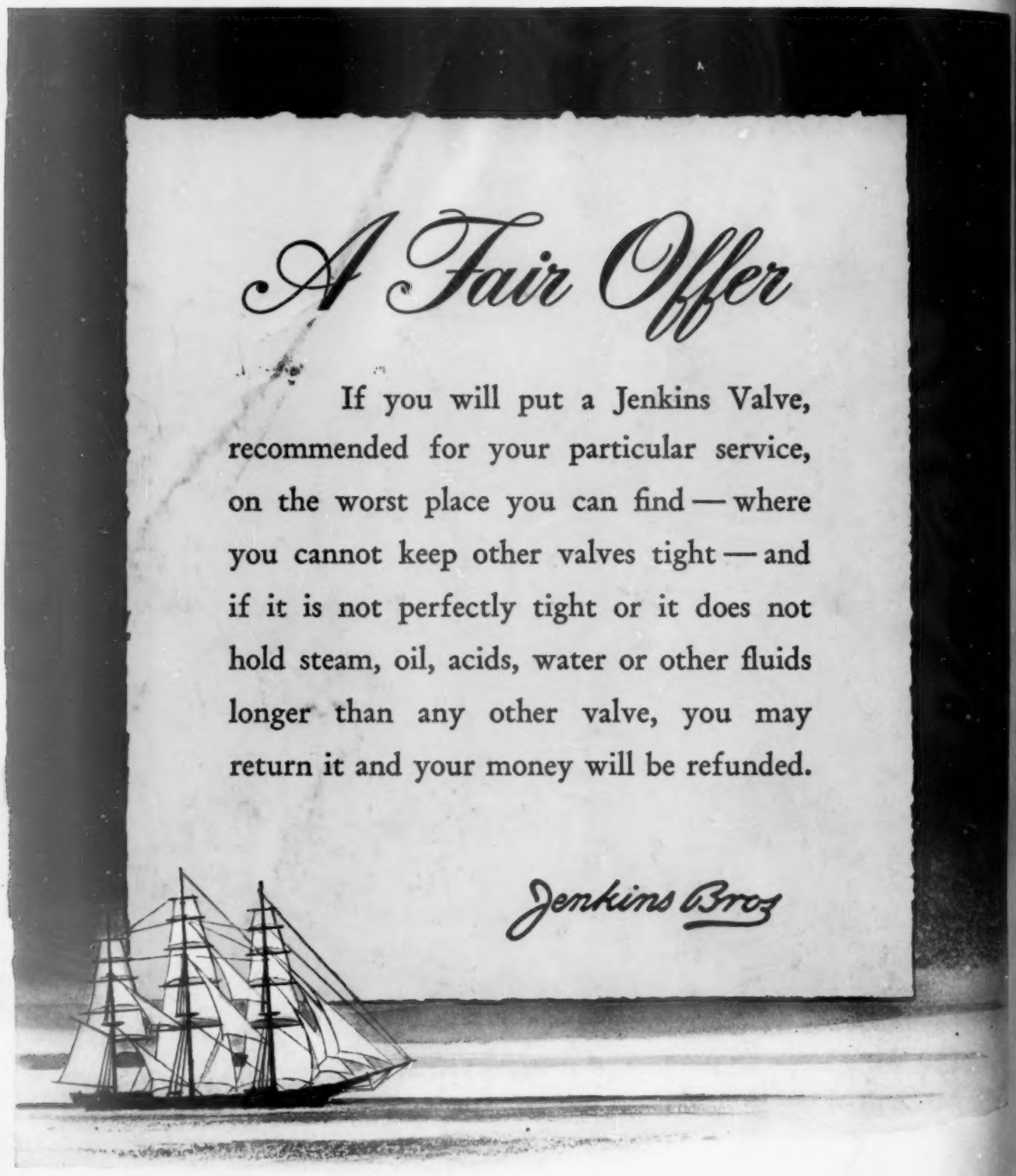
The wetter you get, the more you need the special fibers in Fort Howard Paper Towels for superior drying ability. Fort Howard's Controlled Wet Strength process produces towels that stay strong and firm when wet, without losing softness or absorbency.

In addition to economy in use, only Fort Howard offers 18 towel grades and folds — to assure low-cost user satisfaction whatever your washroom requirements. Call your Fort Howard distributor . . . he'll recommend the towel that fits *your* needs exactly!

For 36 Years Manufacturers of Quality Towels, Toilet Tissue and Paper Napkins

FORT HOWARD PAPER COMPANY
GREEN BAY, WISCONSIN

For More Information Circle No. 502 on Inquiry Card—Page 17



"A Fair Offer", first published in 1869, was more than a warranty of superior performance. It charted a course for fair dealing from which Jenkins Bros. has never veered.

By making valves that measure up to this forthright offer, Jenkins Bros. has continued to set the highest standards for quality.

"A Fair Offer" is republished, at regular intervals, as our pledge that those standards will always be observed.

Sold Through Plumbing - Heating and Industrial Distributors

JENKINS VALVES

LOOK FOR THE JENKINS DIAMOND

SINCE 1864 TRADE JENKINS MARK Jenkins Bros

